

THE MONIST

HERBERT SPENCER'S WORK IN THE LIGHT OF HIS LIFE.

THE hundredth anniversary of Spencer's birth finds the world of science, as well as the world of affairs, quite different from what it was when the great philosopher first saw the light. In no respect, perhaps, has the change been greater than in the field of the social sciences. All of these, with the partial exception of economics and politics, have come into being in that hundred years. Spencer was himself one of the two greatest figures in the development of sociology; and it is primarily as a sociologist that he is remembered to-day. He probably did not think of himself as a sociologist so much as a philosopher, for his occasional indirect characterizations of himself use only that term after his period of writing begins. In his later years only did he become primarily engrossed in sociological theory. Even while working on his *Principles of Sociology* and directing the compilation of the *Descriptive Sociology*, and putting most of his income into it, he turned aside from these tasks to write the *Data of Ethics*, which he regarded as the embodiment of his chief ideas and the crown of his work, lest he should not live to accomplish his full plan.

What influences led Spencer to become interested in the subject of sociology it is difficult to say, for, in spite of his great pains in his autobiography to give the genesis and causes of his ideas, many things remain unaccounted for. Also, it is unfortunate that he wrote so largely from memory; the internal evidence of his autobiography shows so

conclusively and so repeatedly that his memory often played him false. That the idea of writing the *Sociology* grew naturally out of his classification of the sciences is patent enough, but from what his interest in sociology as such sprang he is able to give us little information. Undoubtedly in later years he developed a mental conflict about his indebtedness to Comte which inhibited his memory from recalling many suggestions which must have been given him by his great French predecessor and contemporary. He admitted having read Lewes's exposition of the Comtean system and most of Miss Martineau's translation of the *Philosophie positive*, and he says, "It is probable that but for my dissent from Comte's classification of the sciences, my attention would never have been drawn to the subject." He here refers to his own theory of the classification of the sciences.¹ Of his indebtedness to Comte he says, "The disciples of Comte think that I am much indebted to him; and so I am, but in a way widely unlike that which they mean. . . . My pronounced opposition to his views led me to develop some of my own views."² The only suggestions which he acknowledges are the words "altruism" and "sociology."

Spencer began his literary career with the discussion of political problems, and he himself makes much of this as leading up to his later interest in social ethics. But this interest was largely a practical one at first and even in *Social Statics*, which appeared when he was twenty-eight years of age, he was putting forth a political pamphlet rather than a sociological treatise in the sense of his later writings. However, the germs of his sociological and ethical bent are clearly in this book, in which he attempted, as he said, to discover natural laws for social ethics as definite as those for physical phenomena, and it remained only for the directive influence of the prevailing tendencies

¹ *Autobiography*, I, 517-18.

² *Ibid.*

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in thought to expand and make more definite his growth in the direction of sociology. Among these influences Comte must certainly have played a large part. The truth seems to be that until he was almost forty years of age (in 1858) he had no settled plan of writing. His chief training had been in mathematics and the physical sciences; his chief activities were those of a civil engineer, an inventor, and later an editor and writer for reviews. Through the first half of his life his intellectual interests came largely by accident. He drifted into journalism while in search of a "filler," on the strength of some earlier contributions. His earlier review articles cover a variety of subjects, ranging from physics and astronomy to railway legislation and supervision. His first book, *Social Statics*, was more the result of a desire to put into permanent form the ideas contained in some early contributions to a controversial journal than the consequence of any systematic plan of authorship. Not long before the writing of this book he had been debating with himself and seeking the advice of friends as to whether he should devote his talents to art (he did some drawing and modeling), to engineering, or to literature; and as late as two years after he was on the point of migrating to New Zealand.³

There is no record that he ever made a definite decision, but rather he drifted into literature in the manner indicated. His second book was also largely an accident. Something, not clearly defined in his account, led him to interest himself in psychology. With the vigor of attack and persistence which were characteristic of him, in spite of his often repeated references to his indolence, he assembled his ideas on this subject and put them into a book. But there is no evidence that this book was then conceived of as part of the orderly plan which it was later fitted into.

By this time (he was now thirty-five) his literary career

³ *Ibid.*, I, 429.

had been fixed upon him, partly because of the development of his habits in this direction through several years of writing, and perhaps equally because of the injury to his health from too close application in finishing the *Psychology*. For a number of years still, however, he drifted in his interests, spending many months recuperating, writing review articles on various subjects, as they caught the fancy of his ever active and solitary mind, planning books, which he wrote only in part or in modified form, as, for instance, his *Education*. And finally, in 1858, just before Comte's death, he produced the outline of his synthetic philosophy, which obviously consists of some fragments of a vast encyclopedia modeled on the general outline of his classification of the sciences. The omissions from this series of projected works are as instructive as what he included. There is nothing on astronomy and geology, the reason being in part that he lacked sufficient familiarity with these subjects. But he also lacked a knowledge of biology and sociology and ethics. Perhaps the chief reason for the omissions was that these subjects did not promise to lend themselves so well to the speculative method of treatment. He was never at any time a grubber after facts. Even in his early days, so he tells us, he read little in technical fields and in his later life scarcely at all. He picked up his germinal ideas from various sources, most of which he forgot or never fully realized, perhaps as often from conversations as from books, and worked these out into organized systems on his long walks. The only book for which he collected facts by any orderly process, and that by proxy, was his *Principles of Sociology*; and there is good reason to suppose that many of his ideas on this subject were well formed before he collected the data for his generalizations. Indeed, the evidence seems to be that he knew little sociology, as the schoolmen know it, when he wrote his *Study of Sociology* in 1873. He was

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at that time still engaged on his antecedent writings, in particular a revision of the *Principles of Psychology*. In some ways he seems to have enjoyed writing this little book on sociology most of all, and largely, it would seem from his accounts, because it led him into a new and entrancing field of speculation.

When he began his Synthetic Philosophy by writing *First Principles* his thinking was still dominated by physical concepts. This form, if not the substance, of his thinking, continued largely through the composition of the *Biology* and the revision of his *Psychology*. When he came to sociology he was inducted largely into a new world, that of human relationships. Previously he had not dealt with people, but with principles of biophysics and "cerebral physiology" which he pinned down upon the world of people to cover whatever of their nakedness of action they would cover. In this he was of course not unaffected by the conventional ideas of his time. In some ways he was most naively influenced by prevailing concepts and theories, although he did not realize this. His uncritical acceptance of the Utilitarian philosophy and psychology and of the prevailing laissez faire doctrines of social action are cases in point. His disagreement with these views, where such disagreement existed, was usually the result of his ignorance of the details of the theories rather than of any preconceptions to the contrary. His habit of not reading extensively left him delightfully free to work out his own applications or extensions of any theory which his remarkably versatile and receptive mind absorbed. Not being educated in the universities or in any formal sense, he lacked a foundation of accepted principles and academic prejudices—although he was not lacking in popular prejudices—which would inhibit him from giving his mind free play in any field. Thus he was peculiarly equipped to take any leading concept of the times and give to it a richness

of development which would probably have been impossible to an academic philosopher. Accordingly, his great contribution and his brilliancy, which dazzled the generation which corresponds to the last third of his life and filled the world with his fame, consisted not so much in the new concepts and epoch-making ideas which he brought into the world as in the infinite detail, the surprising richness of analysis and synthesis, ever improved by a most happy diction, with which he illumined every idea which he touched. Long before his death the world of social science had left him in its wake; he had in spite of his doctrine of evolution become almost a hopeless conservative and reactionary, not comprehending the new world. But his contribution of phrases, of ideas, was monumental. And this was sometimes mistaken for erudition and constructive thinking.

When he came to write the *Principles of Sociology* he had for some time pored over his collected data and, while it could not wrench him from his preconceptions, established through fifty years of assimilation and elaboration of prevailing ideas, it did render his treatment of his subject matter much more human. We have in this work a peculiar mixture of concrete fact and skeletal principle. The one is the flesh and blood which covers the bony framework of his system. The framework is largely predetermined in the locked chambers of his mind, but the fleshy covering gives it the semblance of life and plausibility. He adopted the anthropological method of constructing his *Sociology* just as he adopted his major concepts and values, including the theory of evolution or, as he called it, the developmental hypothesis, because it pervaded his intellectual atmosphere; it saturated him. As a consequence of this and of his ignorance of history, he wrote mainly of a society which was in the unhistoric past. His conclusions for the future lack vitality and validity, because

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they are not enlightened by an understanding of the proximate evolution of the great European society in which he himself lived. In the matter of prediction and orientation toward the future Comte and Saint-Simon were vastly ahead of him. They approached their task of social analysis and synthesis after a careful and relatively thorough study of the evolution of the prevailing culture. They knew the historic tendencies. They had a fairly accurate cross-section view, corrected by historical perspective, of human society as it was in their day. Consequently it was fairly easy for them to project their observations a few decades ahead and arrive at reliable conclusions for the immediate future. Spencer lacked this advantage. Approaching the subject from the standpoint of anthropology (the data on contemporary societies in his *Descriptive Sociology* were not collected until later and were then probably interpreted in the light of the previously collected data from primitive societies), he concerned himself primarily with the interpretation of primitive life and thought. Even in the discussion of economic matters, including his famous thesis of industrialism versus militarism, he comes down no further than the beginnings of the industrial revolution, if as far. He was really writing about the conflict between a barbarian or grazing society and an advanced agricultural society, with some extensions into the Europe of modern times. Thus it is with all his great generalizations for modern society or the future. In the absence of a detailed knowledge of social structure and functions, he predicted on the basis of his general principles, which are the *laissez-faire* and self-interest preconceptions of the late eighteenth and early nineteenth centuries. He clothed these ill-adapted generalizations in the enticing raiment of primitive or medieval practices. He never thoroughly understood even the world in which he lived, much less that which was to come.

This failure of Spencer to understand the real modern world created by the industrial revolution and made possible by the exploitation of the natural resources on a large scale is well illustrated by his imputed antithesis between militarism and industrialism. Such an antagonism was indeed normal to the early cultures of which he actually wrote and from which he drew his data. What Spencer failed to see is that militarism is never an end in itself in any age or social economy, except by perversion of its function, but that it is a means to exploitation which may serve one type of state as well as another, provided that state is bent upon exploitation rather than production. At the time of the transition to agriculture and the handicrafts, and even in the period of the domestic system, the development was predominantly one toward production and away from exploitation. The new types of industry were providing an abundance for an expanding population and therefore those engaged in them did not need to exploit their neighbors, but were rather the objects of exploitation by their neighbors who had not yet progressed so far in industrialization. Also, at that early period of industrialization there had not grown up a class division within the State which made it the business of one particular group—the capitalists—to exploit rather than to produce. There were, of course, class divisions in the earlier forms of the industrial societies, and some of these classes exploited others—instance slavery, which sometimes was the fruit of war and serfdom—but on the whole the earlier industrial societies were pretty largely units in productive enterprises, whether democratic units or otherwise, and since their raw materials were almost always to be found at home—except, in some cases, land, which must be acquired abroad for the support of an expanding population—they ordinarily had more to lose than to gain from war.

But the modern industrial State, which came fully into

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existence with the industrial revolution, destroyed this nice internal balance and unity which had belonged to the earlier economic society. Instead of being based primarily upon an agricultural economy and fostering manufacture only as an adjunct to an agricultural economy, the industrial technique began to transcend the agricultural limitations, in the service of which it had developed, and made itself subsidiary to commerce, and later to finance. The factory system, in supplanting the handicrafts and domestic systems, produced only secondarily for home agricultural needs and primarily for world markets. It transformed human society from many relatively self-sufficing agricultural units, finding their greatest happiness in successfully defending themselves from the attacks of their less advanced and hungry competitors, into a complexity of peoples, many of whom remained for some time in the agricultural stage, but a few of whom adopted an aggressive industrial and commercial internationalism. This new internationalism, which so ruthlessly disturbed the peace and quiet of the agricultural groups and soon, by virtue of the superiority of its military technique and equipment, put the most primitive disturbers of the peace out of the running, was bent on a conquest of the world markets. This was made possible by the unprecedented exploitation of coal and iron, which substituted natural energy in unheard of quantities for human and animal muscle power, and built vast factories filled with machines which were the substitutes for men in production, and even vaster transportation systems to carry away these products. Soon the production of this leviathan exceeded the capacity of the people at home to purchase. And soon it ate up the available supplies of raw materials. The surplus of finished products was sent abroad for more raw materials to feed into its maw. This process was immediately profitable for the country which had fostered it. Population, always among the

masses peculiarly sensitive to the presence of more food, increased by leaps and bounds. The agriculture of the native soil could not support this increased population. Consequently, one of the raw materials drawn from abroad to feed into the vitals of the great industrial process came to be food. The result was that countries in becoming industrialized—over-industrialized and over-populated, in fact—actually lost their self-sufficiency and, potentially, their independence. Capital also accumulated in vast surpluses in the hands of people far removed from the actual productive process. When the home country became saturated, this plethora of capital had either to remain idle and unproductive or to be loaned abroad. From being loaned abroad to willing borrowers at ruinous rates, and then collected through the agency of the home government, it in time came to be forced upon weaker peoples as a device for establishing some sort of commercial and political "protectorate" over them. As more and more countries came into the game of over-industrialization and of establishing profitable trading connections abroad, competition increased and the "colony," the "protectorate" and the "sphere of influence" came into existence as polite terms to cover this form of foreign exploitation. All this meant war—war against the native races who rebelled at the rape of their lands and of their raw materials, and war with the competing over-industrialized states.

Spencer grew up in the midst of this process of growing over-industrialization. His own native town of Derby was in his early lifetime transformed from a peaceful country town to a clanging industrial city. He himself helped to build the railways which served this system. Some of his closest friends were among the capitalists who helped to finance it at home and abroad. He was, however, an ardent anti-militarist, and, by implication, anti-imperialist, suffering his final breakdown in health because of his activities

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in organizing and promoting a peace society or "Anti-Aggression League."⁴ Yet, with all that he saw of the actual process going on around him and with all his disapproval of its consequences in the concrete, it is doubtful if he realized its true evolutionary significance. He lacked historical perspective. It is certain that what he saw was not able to counteract his formula of the necessary antagonism between an industrial and a military order, once it had been arrived at from the study of another and distant set of facts. He did see that the working classes were opposed to war,⁵—although he does not tell us why—and that "the organs of the upper classes, ever favoring a policy which calls for increase of armaments and multiplication of places for younger sons, ridiculed the supposition that it was practicable or desirable to restrain these colonial authorities who yearly commit us unawares to expensive wars and additional responsibilities."⁶ If he could have freed himself from his prepossessions he might have come to see that modern industrialism, with its outgrowth of international commerce and capitalism and over-population, with its consequences of imperialism abroad and uneven distribution of wealth at home, is the most effective of all causes of war. Indeed, a super-industrialization and a super-militarization of society go hand in hand.⁷

As little cognizant was he of the change which this over-industrialization had wrought in man's relation to the functions of the State, although his blindness in this connection was due primarily to his early prejudices and perhaps to some constitutional limitations rather than to the

⁴ *Autobiography*, II, 448ff. He says of this undertaking, "It was absurd to expect that any considerable number would listen to the principle enunciated. With a parliament and people who quietly look on, or even applaud, while, on flimsy pretexts, the forces of our already vast Eastern Empire successfully invade neighboring States, and then vilify as 'dacoits,' i. e., brigands, those who continue to resist them, the expectation that equitable international conduct would commend itself was irrational." *Ibid.*, p. 447.

⁵ *Ibid.*, II, 444.

⁶ *Ibid.*, II, 448.

⁷ Cf. "War and the Democratic State," *American Journal of Sociology*, 22: 193-202.

limitations of the anthropological method. To the end of his career he remained unfriendly to the expansion of State functions, opposing in his seventy-third year State education when state education had become almost universal. In so far as his disapproval of State patronage was due to his non-conformist fear of state repression and partisan government propaganda there was much to be said, at least in the abstract, for his view. But his preference for private associations which might, if need be, defy the state was largely based upon certain misconceptions, in so far as it was not subconsciously motivated. In the first place, the industrialization of modern life has so multiplied its complexity that the individual or even the great majority of associations of individuals is no longer able to accomplish anything worthy of note apart from State aid. The curriculum is now too vast for individual school masters, such as his father and uncle, to cover it entire. The requirements for the sanitation of a modern city could not be met economically and efficiently by any association of less extent than that of all the citizens; nor would any other method of assessing charges for service or of compelling participation equal that of the laws of the State. Not only is society now much more complicated, but, by corollary, relationships are much more indirect. Imagine each man being his own meat inspection department or his own public health bureau to test the water supply, as well as undertaking to provide these conveniences for himself. The State may be aggressive, corrupt and often in the hands of special classes who use its prestige to exploit the weaker individuals, but it is the nearest approach to a balance of powers and to an impartial regulative system we now have or perhaps can have. As long as there is universal suffrage there is a chance that the people may capture the State from the hands of exploiting classes, if only they are sufficiently intelligent. At any rate such

capture is easier of accomplishment than for the weak individuals, unaided by the State, to pit their puny understanding and resources, through the medium of voluntary organization—as Spencer urged—against the expert organization wielded by the choicest intellects and financed by unlimited means of the selfish powers that prey upon the masses, at home and abroad. This is a lesson which labor is slowly learning in our day, as it turns from the relatively direct organization of labor union to political action through a political party in its attempt adequately to influence the State through the capture of the government.

Spencer's failure to perceive the trend of the times in respect to the growth of the powers of the State, especially in the direction of beneficent organization and functions, was not alone due to his non-conformist prejudice and country localism, although these probably played the larger part. His intellectual stubbornness, growing in part, perhaps, out of his shyness and strong self-feeling and his training from early years in argumentation, and above all from the isolation in which he received his education, his few fellow pupils being uniformly of inferior caliber to himself, predisposed him to discount other people's opinions. Once he accepted an idea he held on to it tenaciously lest a change of view should indicate defeat and imply a confession of intellectual inferiority which he could not endure. All this is well illustrated in his strongly critical spirit as an engineer, where he did not hesitate to comment adversely on the ideas of his superiors, and in his slight recognition of what he owed to other thinkers, including Comte. So little was he able to argue dispassionately that, as he remarks, the subject of the positivist philosophy was taboo in the conversations between him and the Leweses, that being the only topic regarding which there was fundamental disagreement between them. Again and again he

goes out of his way in his autobiographical account to demonstrate the originality of his views and their dissimilarity to those of Comte. He had an obsession or abnormal complex on this matter, which apparently came from his early individualistic training and education.

Probably also the state of his health strengthened this *laissez faire* philosophy. Just as Nietzsche's unwanted emphasis upon the perfection of the superman may be attributed in part to the mental and emotional rebound from his own physical insignificance, so may not Spencer's strong emphasis upon self-sufficiency be in part due to his chronic ill health and the psychic complex which must have been created by constantly steeling himself, in his semi-indigent days, against accepting aid from those friendly to his work? That this complex did exist there can scarcely be any doubt, when one observes the strained and sensitive way in which he brought himself to reject such aid. Through some twenty-five years or more of his working life the inadequacy of his finances was marked and they never became equal to his entire needs. His *Descriptive Sociology* had finally to be dropped because of the financial drain it entailed. Yet, few men have received so much gratuitous aid, however veiled, through the kindnesses of friends or conventionalized through legal processes. Three times he inherited property from relatives when his resources were about exhausted and at least as frequently his American and British friends arranged methods for financing his work which he would accept and many more times proposed methods which he would not approve. All this inner struggle with the inadequacy of his own strength and his own means must have produced a complex regarding himself which projected itself into his understanding and evaluation of society itself, if indeed we are to accept as valid the present-day theories of the molding influence of the subconscious.

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Despite Spencer's preconceptions regarding many issues and his failure adequately to understand the modern world into which the process of evolution had cast him, he was in his younger days pretty much of a radical. Even in his old age he said of himself, with a good deal of satisfaction, that he was at the same time the most radical and the most conservative of men. When in his twenties, he had stood for universal suffrage—for which indeed he voted, against his convictions or prejudices, as late as the sixties; was an early advocate of women's rights, including the suffrage and greater personal and economic freedom; favored the Chartist movement, for which he was expostulated with by his closest friends; and was regarded as a free thinker and skeptic in religious matters, in consequence of which he lost his closest friend, E. A. B. He even wrote articles and pamphlets in behalf of the cause of the masses; and at one time in middle life a Free Church minister, learning that Spencer was in the same hotel, held religious services to counteract the influence of "anti-Christ," as he chose to call him.⁸ But at the end of his life he retained but little of his political liberalism, being opposed to the further extension of the suffrage on the grounds that the low intelligence of the masses could not be trusted to govern wisely and that once in power they would substitute for the old oppressive bureaucracy, which deprives men of their liberties, an even more oppressive and a less intelligent one. Such was the nature of social change—a succession of compulsory social organizations. So convinced was he of this that he regarded it as a social law. In his latter years he was constantly tormented by the specter of socialism, which was to come to establish in the future a complete autocracy of the State. The various so-called reform movements, which he regarded as signs of weakening moral fiber, were the forerunners of this socialism to be. The only safeguard against

⁸ *Autobiography*, II, 438.

it which he knew was to weaken the powers of the State and increase those of private associations. He could not foresee the full fruition of the powers of capitalism as an example of private associations. Regarding the equality of the sexes, social as well as individual, he seems also to have changed his views; and he no longer allowed for the same unconventionality of sexual unions which his earlier views had tolerated.

The causes of these changes in attitude are obscure. There is a singular reticence and lack of detail in his autobiography about some aspects of his life. In attempting to trace out for the reader the development of his main theories, he often concentrates unduly on formal facts, such as the first appearance of an idea in his correspondence, or the first mention of a plan or prospectus in his writings. He himself apparently had forgotten, if indeed he ever recognized, the concrete and intimate situations out of which his ideas and orientations grew. He does say, however, of his growing political conservatism, that in his youth he thought only some formal political or legal changes were necessary to bring in a new social era, but that he gradually came to realize that the process of fundamental change was much more complex than that. He perceived that changes must take place in the natures of men before they could become effective and lasting in their institutions. This sort of change, in spite of his optimistic belief in the inheritability of acquired characteristics, he regarded as extremely slow, so slow as almost to discourage one in the hope of any change at all. It is interesting to speculate as to what hope of reform he would have had if he had accepted the theories of Weismann on heredity.

Undoubtedly much of this conservative trend was temperamental and personal. Although he speaks infrequently of the stupidity of the public in connection with the reception accorded by it to his books and articles, those remarks

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are sufficiently pointed to show the ill-repressed rancor that lay beneath. At one point he contemptuously compares the success of Foerster's *Life of Dickens* in selling 10,000 copies in three months to the non-success of one of his own books which, by implication, is of much more importance to mankind. Of his earlier works, which received little or no intelligent notice from the reviewers, he wrote what he considered model reviews and inserted them in his autobiography. There is no question of contemporaries that he was a deductivist merely. His chronic ill health and depression resulting from dyspepsia doubtless also had a marked effect on his outlook upon life. He early became detached from the masses of his fellow beings and felt that detachment strongly. Little things, which are usually neglected in history and biography, probably played their part. A number of times he was irritated at the, as he thought, unwise compulsions of the State. Once his father suffered considerable loss from some supposedly unintelligent sanitary requirements imposed upon houses he owned, and he himself was similarly annoyed when he inherited the property. References to this are repeated and disclose strong irritation. To a man more or less psychopathic and neurotic—Spencer undoubtedly suffered greatly from neurasthenia, as well as insomnia—such apparently small incidents might easily create a psychic complex which would dominate much of his thinking in after life. Nor should there be left out of account the fact of his almost exclusive intellectual association in his later years with men of property and conservative university professors and clubmen, including retired army and naval officers and civil service men. Always impressionable to a high degree, in spite of his strong subconscious reaction against the signs of external influence—which he usually recognized only when put in the form of argument—he could not have escaped this source of the molding of his opinions.

His changed views on the function of religion in society perhaps illustrate as well as anything his increasing disappointment in the popular intelligence. In his early days he seems, in common with most thoughtful young people, to have regarded life as pretty much a matter of logic. He saw social problems as problems of abstract truth. His concern with religion to almost the end of his life was primarily as to its reasonableness. His own evolution in religious concepts required almost sixty years for its completion, arriving finally at a completely agnostic position. But finally he came to see that religion had arisen, even in its cruder forms, largely out of the needs of man for effective social control. His early libertarian views in regard to the ability of the masses to control themselves and their society through the unaided and immediate exercise of human reason gave way in the face of accumulated facts. In the light of his study of human society he came "to the conclusion that the control exercised over men's conduct by theological beliefs and priestly agency, has been indispensable. . . . So conspicuous are the proofs that among unallied races in different parts of the globe, progress in civilization has gone along with development of a religious system, absolute in its dogmas and terrible in its threatened penalties, administered by a powerful priesthood, that there seems to be no escape from the inference that the maintenance of social subordination has peremptorily required the aid of some such agency." It would have been only a step further in his thinking to have recognized that similar limitations upon the powers of human reason and initiative, particularly in a very complex industrial world, would make necessary the continued growth in powers of a beneficent State. He might even have reasoned that as mankind come increasingly to substitute the technique of science for that of magic in their thinking and in their

• *Ibid.*, II, 845.

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control over the external world, they may as safely turn more and more from the dogmatism of traditional religion to the dogmatism and conventions of the State, which may in time become increasingly rationalized in response to the growth of an intelligent democracy. But his prejudices were too deeply set for his intellect to make this leap in his old age. He was headed in the direction of reaction—back toward dogmatic religion, as a regrettable concession to facts as he saw them, and not forward to a growing and rationalized, democratically controlled State. Although he observed twice in his autobiography that it is the workers who oppose modern wars, the evils of which he sees clearly enough, and the upper classes who foster them, he does not learn a lesson in democracy—that the cure for democracy is more and less obstructed democracy—from these facts. If he still lived, in the hundredth year after his birth, he would have before him the interesting spectacle of the laborers of his own country, almost single-handed, placing a veto upon war in order that they might save the remnants of a sadly shattered civilization. It is the workers and not their rulers who appear to have the vision to protect the future of the human race. But, perhaps, Spencer would say—however contradictory that might be to his main argument of the incapacity of the masses for democratic control—that we have here the voluntary organization of the workers against the State. So it is, but a voluntary organization which may soon capture the control of the State through the ballot and thus become the government.

Spencer's long period of semi-invalidism, lasting from the publication of his second book at the age of thirty-five until his death nearly fifty years later, and becoming gradually worse during that time, has usually been regarded as a distinct disadvantage to him. In many ways it was. His output, great as it was in spite of these difficulties, was doubtless cut down considerably. In his later working

years he was frequently able to dictate only fifteen lines a day, and often none at all. For several years five ten-minute periods was a maximum day's work. Whole months and years were lost at various intervals of his career, and even at the best, after his breakdown in 1855, he was able to write only three hours a day. This limitation upon his time, added to his earlier dislike for consecutive task reading, prevented him from having at his disposal a mass of concrete data and of statistical materials which would have done much to correct the *a priori* character of his thinking. In the later works on social subjects this deficiency was in some measure met by the large collection of data which his assistants gathered for him and which constituted the subject matter of the *Descriptive Sociology*. But all of this material was second hand to him in a double sense. It represented, in the first instance, the impressions of other men who often had preconceptions which warped their observational powers. Also it was selected by other men from the original sources for his own personal use and could not therefore represent his own critical choice. However, his lessened ability to compose was not altogether a handicap to him, his method of writing being what it was. In fact this inability largely determined his method of production. At least in the middle years of his career it did not greatly limit his time for thinking. If anything, it increased the proportion of the time given to reflection to that devoted to composition, which was probably a very good thing. It resulted in his books being most carefully thought out and organized with a thoroughness and precision which have characterized the works of but few authors. He brought to each period of composition well digested material which expressed itself with an admirable lucidity, rendering his books the most fascinating reading of modern philosophers. Closing to him in large measure the avenue to concrete induction because of lack

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of materials, it drove him more and more into ultimate generalizations. Necessarily many of these have not stood the test of time, but it was a very valuable thing to have done. Probably no one else in the nineteenth century did so much to open up new lines of thought and to stimulate constructive and critical thinking.

This generalizing habit had been characteristic of him from childhood, and he believed that it was inherited from his father. A more likely source is that of the type of education which he received from his father, who early trained him in intellectual self-reliance and especially in looking for causes of things. He was never subjected to a formal schooling process, which would have served to fill him with predigested knowledge rather than stimulate him to discover truths for himself. Moreover, he was never hurried, either in his education in books or in his adjustments in life. For nearly half of his life he did not know what he would do next. Even at long past the age of forty he was seeking from John Stuart Mill and others some political sinecure—seeking aid of the State when he would not take it from friends, contradictory as this may seem in the light of his political theories—to enable him to carry on his work. Often he remarks upon his lack of ability to make a practical success in life. All his life, but more particularly in his formative years, he was left free to work out his intellectual adjustment to the world. This undoubtedly stimulated him to do independent thinking and to make those long associations between facts, which we call generalizing on a wide scale.

But free as he was in his intellectual development, he was by no means neglected in this respect. Few if any men have had fathers more keenly alert to the training of their sons or more intelligent in carrying out that training. At the age of thirteen he was put under the tutorship of his uncle Thomas, apparently that he might gain new view-

points and have new companions in his studies. From the beginning his environment had been serious and intellectual, although not forced. Now began a correspondence between him and his father which continued at very frequent intervals for thirty-three years, until his father's death. One cannot but be struck by the mass of this correspondence, two or three letters not infrequently being dated in the same week. After leaving his uncle's house he also kept up a similar correspondence in this quarter. And later there was a considerable interchange of letters with friends, until his health made this largely impossible. But the subject matter of this correspondence is the remarkable thing. It is doubtful if there are many such correspondences in this day, even between professors and their sons. It seems to have been deliberately planned by the elder Spencer to produce certain desired results in carrying out his theories of education. From the beginning the prevailing items of interest are intellectual rather than gossip. There are literally hundreds of problems in mathematics put by father to son and solved by the latter. This seems always to have been interesting to the younger Spencer. By and by the son puts problems to the father, or sends him original demonstrations and theorems of his own. Later they discuss politics. When the son is working as a civil engineer there are endless discussions about projected inventions, physical and astronomical theories, and experiments in chemistry. Later in life this interest expands into the realms of philosophy and metaphysics. The father keeps the intellectual respect of his son to the end, showing an ability to follow him in all his thinking. He is keenly interested in every undertaking. Even when past seventy he served for a time as the son's amanuensis. The father largely devoted his life to the education and encouragement of his son. There are few instances like it in history.

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Spencer's education was always highly unconventional. He never wasted his time on the classics, although this was the chief element in English education when he was growing up. His father and uncle had directed his attention from the start to an understanding of the living world. Besides his major interest in mathematics, he was also deeply concerned with biology and made extensive collections of plant and animal specimens through the first half of his life. He also studied geology in the field and for some years did chemical experiments in private laboratories which he and his companions rigged up for themselves. Through his uncle in particular, he very early became interested in political movements, making contributions to the press in this field while still in his 'teens. He had little respect for the merely traditional in education, just as in life. His remarks on this subject in his autobiography are most informing and interesting.¹⁰ Much of his training also came from his friends, especially after he went up to London to engage definitely in a literary career, beginning in his thirties. Lewes seems to have been the first from whom he gained inspiration and guidance. He and Lewes took walking trips, lasting for days at a time, which were filled with discussion and speculation. Both got suggestions for articles out of these conversations. Lewes was the better read of the two and knew the history of human thought. Spencer's was perhaps the more powerful mind. After Lewes came Huxley who undoubtedly for some years served Spencer as a sort of work of reference on concrete facts and processes, particularly in the field of biology. He was for some time accustomed to go to Huxley's laboratory at the hour in the afternoon at which the latter left for home and walk with him and discuss the problems he had been thinking over through the day. When he wrote his *Principles of Biology* Huxley, Hooker and some other

¹⁰ *Ibid.*, II, 43, 307-10.

friends checked him up on matters of detail to make more authentic his generalizations. Already he was greatly handicapped in his power to read and had to depend largely on conversation and discussion for verification of his ideas.

His method of thinking was among the most characteristic things about him.¹¹ He thought in the same leisurely way in which he grew up intellectually. An idea once lodged in his mind was left largely to take care of itself while the owner of the mind went about the intellectual business in hand. The result was that a great deal of subconscious thinking, if one may use such a phrase, was done. So active was his brain that the complex of stimuli, which represented ideas coming from without, spontaneously set up widely functioning and connecting neural processes throughout the association centers of his brain, with the result that all of his mental content was soon brought to bear upon the proposition with little or no effort. The idea complex remained there in the mind serving to collect and assimilate all new ideas and percepts which came within its field. Now and then it would rise into consciousness, reinforced by previous subconscious accumulations, and these would be sorted out and classified and then laid aside to accumulate and assimilate again. Thus his thinking was remarkably spontaneous, being almost wholly free from that drudgery and effort which characterize the novice and the relatively inefficient in thought. In the light of these facts it would seem that Rodin's statue of the thinker represents rather one who is emotionally disturbed and perplexed than one to the manner of thought born. Spencer used his walks and his conversations for the spontaneous recall of his ideas and their classification and comparison, which we call thought, much as some teachers use their class lecture periods for the same purpose, or as Kant apparently employed the neighboring

¹¹ *Ibid.*, I, 463ff.

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church steeple, as he sat at his window in the twilight. In his youth Spencer was greatly given to day dreaming. His later intellectual life partook largely of the same character, in so far as its subconscious spontaneity was concerned.

His method of working was adapted to and grew out of the limitations upon his working time.¹² He used something very much like a card index system, only mechanically more convenient, classifying and arranging his data around him within easy reach of where he sat. As he dictated to his amanuensis the results of his previous thought he took the particular illustrative material which was pertinent to the subject in hand and passed it to his secretary to be labeled and included in the text. Most of his books were dictated, because of the necessity of relieving himself of the strain of writing. The effect of this, he thought, was to render his style somewhat more declamatory and less condensed. It probably also made it clearer, because his ideas had largely formed in verbal imagery before he began to dictate. In later years, when he could afford the expense, he kept a separate room at some distance from his lodgings, where his materials were and where he spent as much of the morning as he was able with his amanuensis at work. At times when he could work only a few minutes at a time and while his bodily strength remained intact—as it did until after the age of sixty—he frequently took his amanuensis on the water and spent sometime rowing for relaxation between brief periods of dictation. At other times he engaged in some game of manual skill or in walking to break periods of dictation or revision of manuscripts and proof. Even on his trips and when a guest he endeavored to do a little work each day, often stopping for a few minutes by the wayside to write or revise. His persistence at work, in spite of his handicaps, was most re-

¹² *Ibid.*, II, 324ff.

markable. It probably would not have been possible to a man who had some other major interest to which he could turn.

And yet the monotony of work was frequently relieved by contacts with many close friends. The friends of his boyhood were his friends still in old age, with the one exception noted, that of E. A. B., who early broke off relations because of differences in religious views. Spencer records the circumstances of this particular incident without illuminating comment. Whether it was a cause for grief or whether he saw the sad humor of it, as one would be tempted to do to-day, there is no means of knowing from his text, except that he does not present the full name of his friend, an almost invariable practice of his if there was anything embarrassing to be said about the person under consideration. Even in his old age these early friends were accustomed to go on outings with him, to visit him in London and he to visit them in their homes. Other friends whom he amassed through the years—he appears to have made none of importance after the age of sixty—were as close to him. Because of the necessity of living an outdoor life through much of his time, some of his strongest friendships were with men with whom he had little in common intellectually, but who because of their liking for him offered him the hospitality of their country estates in England, Wales and Scotland. This close feeling of personal attachment of non-academic men for him seems the more remarkable when one reads between the lines that, because of his infirmities, he was not always a cheerful companion. Once on a trip up the Nile he became so restless and dissatisfied that he abandoned the expedition, although it had been rearranged to make it possible for him to be included. His insomnia often rendered him depressed. But he appeared to have a considerable sense of humor of

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a not particularly subtle and more or less literary kind.¹³ Also he was a good conversationalist, too good, often, for his own strength. In argument he was too aggressive and biting, often intolerant of the other person's views, a debater rather than a seeker after truth.

He probably enjoyed himself most with his literary and scientific friends. He ran through a sort of cycle of these, Chapman, Miss Evans, Lewes, Huxley, Tyndall, Hooker, Lubbock, Mill and Youmans being the chief. He had surprisingly little to say of Darwin, although in a quoted letter he addresses him as "Dear Darwin." Whether this failure to take more account of him is due to his originality complex which tended to inhibit references to those he felt to be his rivals one can only conjecture. Most of the slight space he gives to Darwin is concerned with the question of the priority of their views on the developmental hypothesis. Although he speaks very appreciatively of him, he makes no comment on his death. In fact the only three persons among his scientific friends whose deaths he notices are Mill, Lewes and George Eliot, with all of whom he was in intimate contact. He gives an estimate of the character of each at the point where they pass out of his experience. In his later years his closest contacts among his scientific friends were apparently with E. L. Youmans, the first editor of the *Popular Science Monthly* and his untiring sponsor in the United States. Youmans, besides being to him a sort of hero worshipper and a much needed benefactor, introducing his work to America where it was more generously received than in his own country, in a large measure took the place of his father. The friendship began before his father's death, but after this event his stream of correspondence — thinner now because of failing health — is directed toward his "American friend," as he calls him, to whom he tells his troubles and ills and to whom he submits

¹³ *Ibid.*, II, 424.

or reveals his plans. In a way Youmans overshadows Huxley and Hooker and Tyndall and the others in these later years, but they are not forgotten. He meets them at the club and he honors the meetings of the British Association with his presence when one of them is president. They are very dear to him. But in his illness he leans on Youmans, or on his non-scientific boyhood friend Lott, who goes with him on the trip to America and never leaves his side.

But fond as he was of his friends he was capable of marked aversions. He never liked Comte, although he once discharged a commission to him at Paris for some friends. How much this dislike was due to Comte's theories, which he regarded as in most respects quite contrary to his own, and how much to the fact that he was considered by most English Comteans to be largely indebted to the great positivist, it is difficult to say. That his sub-consciousness was largely back of this dislike seems more than merely likely. If he had an aversion to Comte, he positively detested Carlyle. Lewes introduced him to the famous Scotch philosopher in London, but he went only a few times to see him. His tirade against him¹⁴ is one of the curiosities of literature. He could not endure his egotism, his intellectual dishonesty, his ceaseless belligerency, his shallowness, as he expressed it. Amid all this invective he lets the secret out. He found it impossible to argue with Carlyle, and he was used to dominating arguments himself.

For a man who accomplished so much he spent an enormous amount of time in recreation. Most of the summer months was spent with friends in Scotland or Wales, or the English country side, with occasional visits to Paris, Switzerland, Holland, Italy, Egypt and even, on one occasion, the United States. He did not go much to Derby

¹⁴ *Ibid.*, I, 440ff.

after his parents died, but this place he also made once or twice a year or oftener until almost his fiftieth year. In addition to the more pretentious trips he often went away for a day or a week or two at all seasons of the year except mid-winter, in search of diversion and rest, always seeking sleep. At all times he spent most of his afternoons either in walking or at the club. Fishing was, after walking, his great solitary sport; but he could not bear to be alone. Without a companion he fretted, went restlessly and ceaselessly from place to place, growing nervous and sleeping less. He needed contact with people, even when he could not bear the strain of much conversation. He seemed to like best to visit at houses where there were young people, especially children.

That Spencer never married was a matter of mixed regret and self-congratulation with him. If he ever felt the gentle flame with any degree of warmth he does not confess it. There was a sort of attachment in his early student days, in his early teens; and later, when he was a young engineer, a young lady more sophisticated than he made possible the kindling of the torch; but nothing came of it. He records with some interest and a denial of its justification that many people, seeing him and Miss Evans frequently together, when he was working on the *Economist* in his early thirties and had complimentary tickets to the opera, thought there was something more than philosophic interest between them. On another occasion a friend presented to him, with the avowed purpose of match-making, a young lady intellectually fit but physically unprepossessing; and he assures his reader more than once that physical attractiveness was also necessary for him in such a union. He not infrequently regretted his loneliness and was inclined to attribute his depression in no small degree to it. But he realized that his choice was between marriage and his work. His reflections on this point are

worth quoting, for the enlightenment of the rising generation of students: "As the difficulties of self-maintenance while pursuing a career analogous to mine are almost insuperable, the maintenance of a wife and family must of course be impossible. One who devotes himself to grave literature must be content to remain celibate; unless, indeed, he obtains a wife having adequate means for both, and is content to put himself in the implied position. Even then, family cares and troubles are likely to prove fatal to his undertakings. As was said to me by a scientific friend, who himself knew by experience the effect of domestic worries—'Had you married there would have been no system of philosophy.'"¹⁵ He also doubted if he had sufficient evenness of temper to make marriage successful. His extreme critical bent would, he thought, be unable to restrain itself even in such a relationship. Frequently in his autobiography there are signs of a half veiled sentimentalism about the feminine sex, indicating the existence there, however repressed, of an unsatisfied complex. In his latter days of invalidism he craved the presence of children and occasionally "borrowed" some for periods of a fortnight from the young married women of the Potter family, whom he had known intimately from infancy. His liking for social affairs was also marked. He attended all the dinners he dared and not infrequently more than were good for him. He was particularly pleased with the family picnics which were occasionally arranged among his scientific friends and to which he was invited. He tells with manifest delight and pride of the superiority of the arrangements of a picnic which he planned and gave.

He was a typical Briton in his bluntness. Again and again he remarks on his tactlessness, which he thinks would have stood in the way of success in a professional career. Of his belligerency in argument mention has al-

¹⁵ *Ibid.*, II, 533.

ready been made. This trait comes out also in his remarks about matters of public concern—religion, politics, art. To the end he retained his interest in art and music, and several long passages occur in his autobiography containing attacks, not unsupported by keen analyses, upon popular idols in the artistic world.¹⁶ He seemed to take a sort of malicious delight in thus going counter to accepted opinion. It was the same way with his prejudices, which are not wanting, and his disrespect for the great and the near great. He would not waste his time going to see the Khedive of Egypt when in that country, nor would he present a letter of introduction to an American railway magnate, whose looks he did not like, although he had been told that he would probably receive a free pass over his railways if he dined with him and was civil. He did consent to be the guest of Mr. Carnegie, who affected him and was much surprised to see him—a philosopher—irritable with a waiter on shipboard about his cheese. In the early part of his autobiography there is no mention of nobility or royalty, even by title, but in later life such references creep in occasionally, probably because his contacts with such personages increase. Yet he was never without a large complement of self-esteem, and he was evidently pleased, if not flattered, by the favorable notice he received in America, and displeased by the unfairness of disappointed reporters.

Spencer's mind, as has been earlier remarked, was extremely active. He has sometimes been called a thinking machine. So, in large measure, he was. No doubt one of the causes of his ill health, his fifty years of insomnia, was the endless stream of thought which day and night swept through his brain. The only freedom which he got from this constant intellectual urge seems to have been when he was out on one of his numerous country vacations en-

¹⁶ Cf. *Ibid.*, II, 219ff, 351, 406-8, 448.

joying the scenery of the mountains, of which he was extremely fond, or fishing, at which—after some years of abstinence, for ethical reasons—he became quite proficient. His rambles with friends all too frequently served for further discussion, although they doubtless also gave him relaxation. While on his country expeditions he worked out theories of geological displacement or invented new devices for fishing. Among these latter inventions was an improved folding rod and a mechanical fly, intended to prove that the fish used little discrimination in distinguishing the nature of their intended food; which led George Eliot to remark to him that he even fished with a generalization. Unquestionably this great activity of mind was constantly urging him on to generalizations and conclusions far in advance of any complete data in hand, much as the daring tactician goes far in front of his supply train to make a bold attack and bring up his provisions afterward. If it could be said of Laplace that in his thinking about celestial mechanics he often leaped whole series of equations, going on to more ultimate results in the series which his wonderful mathematical mind saw as if by inference, leaving the less able who puzzled along after him to supply the missing equations, it can with equal truth be said of Spencer that he sensed the generalized meaning and implications of apparently isolated facts in unusual degree and that he made systems out of them for which most of his contemporaries were not yet prepared. If the concrete data more often refused to support his conclusions than was the case with Laplace, this must in part be attributed to the fact that Spencer's field of thought was relatively more complex and the explorations in it much less numerous and less plainly marked. That his was the type of mind of which the greatest thinkers are made cannot be doubted. The painstaking worker in the laboratory who grafts tissues, or weighs ions, or photographs light waves, or com-

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putes population curves, is indispensable; but after all he is only preparing data to be used by the man who can think these facts into an explanation of things. When there appears a man who can do both—it is doubtful if Spencer would have had the patience, if he had possessed the health, to do the detailed work—he has the advantage of a greater and closer familiarity with his tools for generalization, as well as the facility for manufacturing some of them himself, thus effecting a certain economy in procedure. But it may be questioned whether more is not often lost than gained by this absorption of the generalizer in manual details. Of course, the decision here turns largely on the scope of the generalization to be made. In a field so vast as Spencer's much of his time would have been wasted if he had attempted to do this detailed work for himself.¹⁷

This great activity of thought, leading him far in advance of his effective support, as it were, often betrayed him into serious error. Many of his published theories have been called in question or disproved in recent years. The criticisms in this article have been based rather on another fault: his failure to understand his times, the stage in social evolution which he himself had reached or was on the point of entering. An error of generalization without sufficient supporting data may also be mentioned, that of his theory of bicerebral thought. He explained double consciousness and dreams within dreams as the result of the independent thought action of the two hemispheres of the brain.¹⁸ He apparently did not have the concept of neural complexes, acting more or less independently of one another, which is quite adequate to explain the phenomena of subconsciousness and multiple personality, and is much more plausible. He also persisted to the end in his belief

¹⁷ For an attempted justification of the type of generalization (as distinguished from content) performed by Spencer see "The Function of Generalization," *The Monist*, October, 1920.

¹⁸ *Autobiography*, I, 459.

in the inheritance of acquired characters, devoting several pages in his autobiography¹⁰ to evidence drawn from his own case, using the simple and discredited method of treating mere coincidences or similarities between parent and child as conclusive evidence of inheritance. Such data offer just as good argument in favor of the acquirement of characters by imitation, subconscious or otherwise. But it must be admitted that Spencer is not alone in this fallacious method of reasoning. The ultrabiological eugenisists still largely make use of it.

Spencer also had a very strong self-complex, if the indirect evidence of his autobiography can be trusted. The references to his physical condition are exceedingly numerous, and one sometimes wonders if that condition was not rendered worse by autosuggestion. There was no organic trouble, just nervous fatigue and consequent indigestion and depression. When he could get away from himself and his depression, among friends or new scenes, he approached more nearly to the normal. Children gave him something of this diversion, especially in later years, and relieved him accordingly. Although originally considerably of a Puritan in his attitudes, as one brought up in a non-conformist family might be expected to be, his chronic disability led him in later years to be more indulgent with himself. His philosophical hedonism, which he had copied from the Utilitarians, doubtless contributed largely to this, winning out over his early Puritanism, as his theological environment was gradually dissipated. His fondness for club life was marked. He was much more willing to give his time to club politics, even when his strength could ill afford it, than to public movements, which ordinarily he avoided. His fondness for billiards was due in part to his need for non-intellectual diversion, but on one occasion it caused a faithful admirer and pilgrim to his shrine to turn

¹⁰ *Ibid.*, II, 511-515.

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away in disappointment and astonishment. At one time in writing to Youmans he says, "Marvelous to relate, I am now able to drink beer with impunity and I think with benefit—a thing I have not been able to do for these fifteen years or more." Yet with all his play he was haunted by a strong sense of responsibility for the proper use of his time. Even in his more competent years he refused to stand either for Parliament or for the rectorship of St. Andrews, on the ground that he could do more with his limited working time for social progress through his writing than in such practical service. He resented very strongly the non-inclusion of his books in the library of the University of London, and was much pleased by the attention he early received from students and faculty at Oxford and Cambridge.

It is to be expected that much of the giant superstructure of Spencer's synthetic philosophy will in the course of time have to be torn down or remodeled. Such a fate must ultimately happen to the product of all thinkers in a constantly changing world. To the boldest adventurers it may come more quickly than to others, but their honor is in no small degree in having blazed the trails. Spencer was peculiarly fitted by constitution and by training—rather the lack of any formal training, with its implied allegiances to the schools—for this work of intellectual adventuring, in the best sense of the word. It is not fewer Spencers that we need, but always more, with the courage of their convictions and the first-rate ability which was his to bring together in new and in more obvious relationships facts which before had seemed widely separated or even antagonistic. This is true intellectual pioneering; the function of the great generalizer, of the true philosopher.

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LOGICAL FICTIONS.

VI.

We have spoken, so far, of patterns and scales: we have done so only for the sake of convenience. It is impossible to find a useful pattern that is not scaled: if it were not scaled in some way there could be no pattern but only a symbol, as, for instance, *nothing* or *soul*: it is not possible to have a picture without some background. All, even our simplest patterns, are patterns standing out against a pattern which is, as it were, the background. "That" always implies the "not-that" from which it stands out.

We saw that this background is, if we go back far enough in our simplification, the infinite context; it is as if we could see a drop *in* the ocean, but as if it were separated, by ignoring the ocean. In practice the infinite context is "understood": a child's mother is seen against a limited background: quite early in life we get into the habit of using finite backgrounds—such as space and form scales. It is the purpose of this chapter to go more fully into the conception of *patterns based on other patterns*.

When we are conscious of the infinite context or of any part of it, there is a reaction, which it is for physiologists to explain. The reaction may or may not be "articulate": thus a pain in my toe may so affect me that I do not think: but if I do, I can put my thought into the form *that*, and also, probably *there*. This is very vague: but it is articulate—(even though I have no pain there). I have my

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pattern *pain* and, though that pattern implies a non-pain background, I may be more interested in the space background *there* implying some knowledge of the vague background that is everywhere save there. The reaction, then, is usually a limited one.

It is important to recognize that, as we recognize a pain in the toe to be in us, so we must recognize that when we see the light of a new star we are seeing something that is as much *in us* as the pain. Also, that, as when I feel an itch on the tip of my nose I want to scratch it, so when I "see" anything I want to explain it.

Consciousness seems to be a reaction of a particular kind to the dominant part of a multiplicity of sensations—a momentary obsession. It is possible that what is called instinctive or purely physical reaction is more healthy than mental reaction. King Richard III may be more effective than King Richard II. We are only concerned with noticing that a murder and a name are both results of "wants" resulting from "obsessions." The cause of the obsession is what we have called a pattern: we pick it out from an indeterminate context: it becomes an obsession and we concentrate attention on it: and, as we do so, the pattern seems to crystallize, sending out rays or points in various directions, until the whole construction fades away under the influence of a new obsession.

Perhaps it will help if we think of a place where many roads meet. The actual meeting-place (what is called a Circus in well-known instances in London) will correspond to the nucleus of the pattern; given this central point, there will be vistas in various directions, all of which we might pass down; but as a rule we do not indulge in encyclopedic efforts of this kind: if "corn" is the "that" in question we shall pass either along to crops or the baker's shop—not to both. It will not be long before chance or choice has driven us through a series of obsessions, more or less con-

nected, with occasional bursts of what we call a train of thought. It will probably continue to be difficult to visualize the process until some one has invented some way of recording accurately the series of obsessions and reproducing them slowly. The thread a spider uses is only apparently a thread: so our thought is only apparently connected: given the means of magnifying sufficiently, we should probably be led to think of our mental universe as a body touched to sensitiveness in various parts—sensations flashing out here, there and everywhere in twinges. For it is probably much more than a simile to call a thought an ache.

The nearest we get to this desirable experiment is a baby thinking. It gazes—"yes," it thinks, "that is something: it's different from everything else." It then gazes at something else: and then looks back at number one. The difference here is fundamental: when it has only one pattern, it knows only "that" and the "not-that": but, having passed to the other pattern, it can ignore the very unsatisfactory "not-that" and play with two thats.

It would also be interesting to see, if thought could be slowed down for experimental purposes, whether we judge things, not, as is commonly supposed, entirely by what they are, but largely by what they are not. Thus if I see a car on a road, I do not really know where it is until I know (or have at least a sufficient idea of) where it is not. This is what one would expect, if a pattern is scaled: for a scale is useless unless we use it *as a whole*. The scale may be elastic, it may be vague; but we cannot know the intention of a scale unless we get its extension.

A few examples will serve to make this clear.

Timbuctoo: using the space scale we have it *there*: the scale is space, the world, the universe—as vaguely as may be, but none the less the whole space scale implied. Other scales such as time,—*Timbuctoo* when? now? or at some

other time?—or size (etc.) may also be implied. But it is clear that my knowledge of the position of Timbuctoo depends entirely on my knowing at least something about where it isn't.

Der Tag: This is a notorious pattern. But it is not hard to see that it is quite meaningless, unless we know about the days that were not "Der Tag." We cannot here go into an analysis of this phrase: but it would be a fascinating pursuit.

A bee: is it a peculiarity of my own mind that makes me suggest that in arriving at our idea of a bee we knock out certain things that it isn't? We see an instance of bee, I grant, without shuffling in this way; we either do or do not know what *bee* or the visible insect itself *stands for*. But what they stand for is not a mere proper name or label: in so far as it has meaning, we are bound to run along scales, fixing in our mind where *bee* comes by determining (as accurately as need be) where it isn't.

A Grain of Salt: a chemist clearly has a more or less clear idea of what it isn't. But if we consider the phrase as used in the sentence "to take a statement with a grain of salt," we have (have we not?) the same process. To take with a grain of salt is *not* disbelief, is *not* belief. The Japanese describe an argument about the size of a thing as *Okii chüisai no arassi*—dispute of big? small? The phrase graphically describes the movement of the mind over a scale, until it comes to an intermediate position by excluding extremes.

Crimson: the simplicity and the complexity of such a pattern are evident: there is no meaning at all in the word—it is a mere label—unless we have some conception of the non-crimson; just as light-red can have meaning only as on a scale of all-the-reds. The more we know of what crimson isn't, the more accurately we know where crimson *comes on our scale*: what crimson is, is quite another matter.

Outrageous: this is a good example of definition by the negative. The word is equivalent to such a hypothetical word as "beyondageous": conduct is outrageous when it is *outré* or beyond every scale of conduct: such conduct is declared to find no place on the scale of conduct considered ethically: it is not good—it is not even bad—it is not even the worst conceivable—it is beyond anything that can be called conduct. It is a neat conception, similar to the very expressive Japanese *nai koto wa nai*, (isn't isn't, meaning "there is some").

Shrill as applied to sounds. We are apt to say that such qualities as shrillness are relative: so they are: if we are accustomed to a supershrill voice, we shall consider a rather shrill voice, perhaps, as not shrill at all. But if we knew no voices or noises that were not shrill, what meaning could we attach to shrill?

Elastic: that is a fascinating pattern: a child is quite at home with it, "knowing" all about what is not elastic: but as we come to consider what is not elastic, our conception of elasticity becomes more and more shaky: we must in order to understand elasticity understand non-elasticity—a task that becomes more and more difficult. For most of us elasticity will be understood only relatively in a small field of conditions. To avoid ambiguities, there ought to be as many words for "elasticity" as there are conceptions of the "non-elasticity" which scales it.

Death: this too is a pattern, the background or negative of which is now so vague that men can argue that there is nothing "alive" or that there is nothing "dead." But for practical purposes, the scale is got negatively: it is inconceivable apart from time and space scales: it is the absence of something (life) that has been somewhere: it is not mere darkness—it is darkness where light has been: just as when a child plays on the shore and makes sand pies with a pail—and the sand pie has the form of where

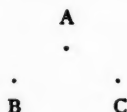
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the pail wasn't,—so death is formed by the conception "life"—it is the pattern left by the removal of life. We cannot here go into this analysis more fully. But we have perhaps shown that here too our pattern (death) is meaningless unless we have hold of the pattern non-death which it implies and requires.

Matter: here we have a pattern of which the scale (or non-matter) has gradually been evaporated, so that it is possible to say that as (if) we can have no conception of what is non-matter, so we can have no conception of matter.

We have then in answer to the question "That is what?" a pattern which is (or may be) scaled. "That" is always like a silhouette which has no "meaning" except in so far as it stands out against a background. The wonderful rapidity with which we supply a series of backgrounds to our complicated conceptions gives them the appearance of body, life and movement—an illusion we may see on a very limited scale in any cinema. To some extent the process may be visualized (very incompletely and inadequately) as follows:

Take three points A, B and C, thus:



Time Scale: anywhere in the past (we imply that it is at some moment that could be but need not be stated).

Space Scale: somewhere in London (we could state the spot more accurately if necessary).

The spot A is a king one. Your mind is now active supplying a number of scales, by means of which your silhouette is gradually made to stand out until you can see a king. There can be no doubt

whatever that your silhouette and mine would be seen to differ if they could be recorded.

The spot B is a horse one—a white horse one—an Arab white horse one. Here again, you will admit, your mind has been hard at work: it has conceived and brought forth what you imagine I mean.

The spot C is a prince one. The same process produces a third silhouette.

All this is only preliminary to the real work: for these points are only circumstances or epithets qualifying what we are talking about—namely that there was then and there a giving which was a King—Prince—Horse giving, the direction being from the King to the Prince. Put in a formal way we are stating that One gave One One, A gave B to C, there was a B giving from A to C or an ABC giving then there. In this simple sentence "The King gave the prince a horse" we see that we have as our pattern a "giving" and that we give it meaning by an incredibly rapid use of a number of scales, by means of which we block in (as it were) a background until our pattern stands out like a snow peak against a cloudy background. Thus we get back to the iceberg we spoke of before: we deal with the visible portion—ignoring the infinite remainder, but using (as it were) the sea and the sky (these also having infinite remainders) as finite scales by means of which we outline that part of the iceberg which concerns us. It sounds complicated: but thought is complicated.

We must now deal with the difference between the questions "That is what?" and "That is who?" There is a subtle difference here: the failure to notice it (and it is a common failure) explains a host of mistakes in the past. The question "That is who?" posits individuality: and an individual is a pattern without a background or meaning.

As we saw before, an individual horse is usually called by anything but "horse." Any name does to mark an individual: in that an individual is unique, an individual is a class consisting of one member, and classification can go no further. Of course it is possible to consider a person not as a person but as a thing: instead of asking "Who is that?" it is possible to ask "What is that?" In early times there was a tendency to ask about mountains, trees, rivers, the sky, the earth and the stars "Who is that?" There is, throughout history a gradual reduction of the use of the question "Who is that?" Some of us may even have got so far as to ask "What is this?" for "What am I?" But it seems probable that until human passions and emotions are reduced to a state of impotence which many desire but few approach, we shall have to continue using the question "Who is that?" which implies individuality, a person, a soul or whatever it is we introduce into our thinking when we use a pattern without a scale. And until, as we said, the world changes so radically as to give up this interesting habit, taking to looking upon experience as full of what we have called scaled patterns, until that happens we shall continue to have three main divisions of philosophy: firstly, pure philosophy which is the proof that we can know nothing—given both in India and Greece long before the time of Christ; and then, applied philosophy which answers the two questions "That is what?" (and under this heading comes all science) and "That is who?" (and under this heading comes all ethical and religious speculation). We have no difficulty in admitting that, however complicated may be the process, we can get an answer to our question "That is what?"—a satisfactory answer, useful and fruitful—what we call SENSE. It may seem absurd, at first sight, to say that the answer to the question "That is who?" can never be sense: but not if we distinguish, as we shall have to, between nonsense (which has no meaning,

but has import) and bosh (which has neither meaning nor import). Our nurseries are full of the nonsense of religion: "*boys don't cry*" has no connection with the sense that has built up science; nor if small boys were looked upon as things would the phrase ever be used; but given the attitude implied in "my darling boy," what more natural, useful and important than such nonsense? Nonsense (not bosh) is the salt of thinking: the next chapter will deal with it more fully.

VII.

We have seen that to the question "What is that?" there can be no answer. To the question "That is what?" we answer in the form "That is that." Further than that we cannot go: the whole of science has been built up on that equation. But the students of pure philosophy who convince themselves that there can be no answer to the question "What is that?" and the students of science who are content to use only equations are still a minority in the world. What Professor Rhys Davids calls the "soul theory" is still prevalent; in olden days there was "an almost universal and unquestioned belief in the existence, round and about, of an infinite number of non-human beings. These the people took as a matter of course, just as they took the existence of souls inside their own bodies as a matter of course. It was by these souls, within them and without, that they explained to themselves the mysteries of death and trance, and dreams, of motion and of life." We still do. Our science is still shot through and through with traces of it. "Atoms" and the so-called "Laws of Nature" are often nothing but up-to-date "souls." Gautama seems to have tried to kill the soul theory: with what success we know. It is possible that man cannot thrive on nescience and equations: ages of superstition may have so tempered the human mind that it starves with-

out it: and perhaps if one tried to live without the soul theory he would go mad. This point (and many others) is fully dealt with in Burton's *Anatomy of Melancholy*. "*Dulce est desipere in loco*; to play the fool now and then, is not amiss; there is a time for all things." If pure philosophy teaches nescience, and applied philosophy the use of equations, it would seem that in order to keep the *mens hilaris*, the philosophers must be able to unbend and indulge in nonsense. And, though it is rightly to be called non-sense, being illogical or alogical, it will be best to use a less damaging name. Call the result of pure philosophy nescience and the results of applied philosophy either truth (which is merely the statement of an equation) or common sense (which differs from truth in that it postulates the theory of souls). Put more accurately: we have three main divisions of philosophy: (A) That part which deals with how and what we know: the answer being that we know by symbols, and that we know nothing, except (B) the equivalence of symbols, which is our science, the whole built up by elaborating the implications of equations; and (C) common sense which may be called an art built up in flagrant defiance of the first result of philosophy, namely nescience. Many philosophers have admitted the importance of the highly illogical products of common sense; others have despised them, as mathematicians may despise those who "waste their time" trying to square the circle. But what if it is natural to human beings (as natural as eating and breathing) to "try the impossible"? It seems not unreasonable to say that happiness is often found—perhaps always found—in those who are pursuing something that is obviously (even to themselves) out of reach. If that is so, our professors of philosophies will have in future to teach not only nescience, not only science, but also common sense.

If common sense is ever to become a part of philosophic

teaching (and we think it ought to) it is important to see exactly what it is and how it works. We have already seen that it is not the sense of science, which is always an equation on the model of "That is that." We have also seen that it seems to deal with patterns that cannot be scaled: for instance, the moment I look upon something as being somebody, I am lost to science: you can only introduce a somebody into an equation by turning him or her into an "it." If then our common sense has nothing to do with equations, how do we manipulate these not-to-be-scaled patterns?

The point happens to be brought out in the columns of *The Times* of London to-day. The Rev. Prof. C. F. Burney is arguing with the General of the Salvation Army about the truth of the Fall of Man and Original Sin. He says: "To suppose, however, that recognition of the mythological origin of the outward setting of these Hebrew narratives carries with it their 'scrapping' as the media of spiritual truth surely involves the crudest of misconceptions as to their purpose. The writers were actuated primarily, and mainly, not with the teaching of history or physical science, but with the teaching of *religion*. If once we lose sight of this fact, and think that we are to go to them for exact historical information, or for accurate scientific knowledge, we are certain to go wrong and to be disappointed. For it is in the sphere of religious truth that the inspiration of the Old Testament is to be found. The writing in which the truth is contained, whether it takes the form of history or any other form, is merely the human framework, and as such, subject to the limitations of human method."

This is not a remarkable piece of reasoning,—except perhaps for its inconsequence,—but it brings out very clearly the point that a positive value is attached to what is admitted to be scientifically untrue: it has value, in this

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case, as religious truth. Now how can scientific untruth be in any sense truth?

Let us (ignoring the complication that is due to the use of the word *truth* in two contexts of this kind) take an illustration. If I want to start a horse I say "Gee! Up!" and in all probability the horse will move on. If I want to start a car, will "Gee! Up!" serve? Why not?

Now a car has no soul: we treat it scientifically: we don't (unless we lose our tempers) omit the scales by which we can foresee its reactions. We shall sooner or later get into serious trouble if we cannot name and scale various patterns inside the car. But the horse has a personality and, though we know something about horses, we are always up against something unique when we are dealing with one horse. It has been discovered empirically that a horse will react in certain ways to certain expletives. If we visit our horses by night, we know that it is wise to "say something" as we enter the stable to reassure the horses. We have, then, in addressing our cars no words; we act—if we can. In our intercourse with horses we act too—in so far as they are treated as machines: but we recognize the "soul" in them, and work on that with meaningless words. It will be admitted that we do much the same with young children: even with older children: even with adults—as, for instance, in times of war. We shout "The Hun is a pig" or "Allah is great" or "Death to the Foreign Devil": we do not claim to be "actuated primarily, and mainly, with the teaching of history or physical science, but with the teaching of" patriotism. Unfortunately this claim that we don't mean what we seem to mean is a very dangerous one. If I could persuade your horse that when you say "Gee! Up!" you don't mean anything, he might learn to pay no attention. Expletives are useless unless the target at which they are aimed reacts to them: and inanimate (or soulless) targets cannot thus react. Hence

the first condition: expletives (or common sense) can only be used with individuals (souls). The second condition is: expletives need mean nothing, or they may seem to mean the opposite of what they say: but expletives are useless unless the soul aimed at reacts to the expletive in the desired way.

We have used the term "expletive" purposely: it evidently covers only a very small portion of what is meant by common sense: but it serves to emphasize the very great difference between the language that is used for persuasion and small talk and propaganda of all kinds and the language of science: it also serves to remind us that we have much more to do with "souls" than with science: and the tact which suggests to a man the right expletives to use in any given situation is rightly considered a very valuable asset. Much has already been done to reduce the art of using expletives to a science (crowd management, factory management, the mind of the heathen and so on). It is a complicated question: we have to discover what noises will produce desired effects under given circumstances: and a study of the expletives used during the last general elections in England makes it quite clear that the personality of the speaker must have something to do with it too: it is not right to say that the public will swallow anything: every public requires the right expletives from the right fellow at the right moment. Given those, expletives are indeed (as Kipling once said when speaking of those expletive manufacturers usually called poets) words that walk up and down in the heart of men.

We suggested that this might be made a part of the philosophy teaching of universities. But only in this way: before a degree or any kind of certificate of proficiency for philosophy be awarded, the professors or examiners or both should have satisfied themselves that the candidate has had practice in the use of nonsense, common sense,

expletives or whatever else we choose to call this very human, very important and very unscientific procedure.

Philosophy is an exacting study: it is apt to cause melancholy: hence it should be not only a maxim, but a condition of qualification that a student should not fail "amidst his serious studies and business, to use jests and conceits, playes and toyes, and whatsoever else may recreate his mind." Intercourse with fellow beings or with animals, not theory, teaches how to use words in this meaningless but very effective way. It is far too often assumed that language is, as a rule, used scientifically and grammatically: there are languages that are, as a rule, used thus; for instance the language of mathematics, the language of chemistry; and the notations of music and of phonetics and certain conventions of commerce are accurate. But for the most part words, even in much that claims to be science, are (like an otherwise useless kind of egg) for electioneering purposes. It is the rarest thing to find any one *convinced* in a debate: we start an argument and are not in the least surprised if both sides retire with the conviction that the other side has been talking nonsense: this may very well be so: but our purpose sometimes is to arrive if possible at a conclusion, which is not to be expected unless we start with "given this and that, let us see what follows." Far too often we start from different points of view: the result is as satisfactory as if you and I sat down to play a game, you with chessmen and I with draughts. The trouble is largely due to a failure to distinguish between these three kinds of "knowledge"; in the next section we shall attempt to distinguish between the products of "knowledge," which are usually all grouped under one name "truth," which, in consequence, is an ambiguous term. Let us call the knowledge of pure philosophy K1; of science (i. e., equations) K2; of common sense

(efficient expletives) K₃; and let us see how the "truth" derived from them differs.

VIII.

Bishop Berkeley says that the physical universe which is seen and felt and inferred is just a dream—your dream and mine and nothing else; only it so happens, he says, that our dreams agree in many respects. It is natural to inquire how it "so happens."

We have already seen that in practice we deal with three kinds of so-called knowledge: the fact that one name is applied indiscriminately to all three, has been the source of much misunderstanding. There is, firstly, the knowledge that all knowledge is of symbols, these being the tangible signs which stand for a fictitious relation between otherwise incomprehensible variables—a relation that is assumed to be constant until the deductions from such an assumption are seen to be unsatisfactory. This is K₁. There is, secondly, the knowledge we gain by assuming the equivalence of symbols as if they were constants; by ignoring the variables in the equation as negligible quantities we get what is in theory highly illogical but in practice most useful and fruitful—a fictitious decomposition of the infinite. This is K₂. There is, thirdly, the knowledge which we gain by emphasizing the variability of the values of symbols (positing, in fact, individuality) and treating them as a man aims at a moving target. Using the words strictly, this knowledge is instinctive and emotional—K₃.

Now if in Pure Philosophy there is no truth, if the burden of it is that we can know nothing, it may be objected that if we know nothing, we cannot know that we know nothing. That this objection should so often be a stumbling block is due to an impetuous belief that language will bear any weight: like children skating, we may forget that there are spots which will not bear.

What is meant by saying (idiomatically) that we know nothing is similar to what is meant when we say (again idiomatically) that "there is nothing in that box." This statement, taken literally (as the objectors to our original statement take ours), is absurd: a box with *nothing* in it is not what we really mean: we mean that it is a box with *something else* in it—not the something we were thinking of. Likewise, if I say I have no knowledge of things—that I know no thing, I do not mean that I am daft, but that what I know is *no thing* but some relation. I skate over what is like a frozen surface with great ease and profit: language is, as it were, the ice: you may emphasize, if you will, that language represents reality, as ice "represents" water: no one can reasonably deny that, as we have a body of water under a frozen surface, so we have "reality" behind language: at the same time if you fall in—that is, if the ice gives way—your skating is over and it is a matter of saving your soul alive: so if language gives way and we fall into "reality," our thinking is over and it is a matter of saving our sanity.

Or, to put it another way: I may know nothing about the contents of two bags: but I may know how they behave on the scales: if one is heavier than the other, I can discover what should be added to the one to make it equal to the other, and so on. Words (or the patterns they present) are like such bags: we can do great business with them: but we can never open them: in fact it is only the over curious who ever wonder what is inside them: they cease, in practice to be bags at all, they become weights, and most of us would answer, like a trader asked what was in his pound weight, "why, it's solid."

If, then, of truth there are three kinds, let us use three distinct symbols: the three kinds of knowledge will produce three different results.

Let us keep the word TRUTH as the name of the product

of K₂. As the product of K₁ is a less generally useful kind of truth, let us lop off the first letter and call it RUTH. And as K₃ produces a kind of truth that posits the soul, or personality, let us add one letter (a relic of an old expletive) and call it STRUTH.

RUTH, the product of K₁, must have taken many centuries of thought: we find it complete in the Upanishads. It is reached, like truth, by the gradual elimination of the self, the soul, the personality, until we get such expressions as the Impersonal Self. If we express it mathematically it is the equation

$$\begin{aligned}\text{Everything} &= \text{nothing} \\ \text{all} &= 0.\end{aligned}$$

It looks useless enough: but it shuts out a number of perplexing problems. That equation is to us, what the bars of the cage are for wild beasts in the Zoo. We take this as granted: we become reconciled: we recognize our bearings. We shut our eyes to the discrepancy that must always exist between *this all* and *the all*, and we assume that we may, for instance, say

$$\begin{aligned}\text{this all} &= \text{all that} \\ \text{and disregarding the fact that all} &= 0, \text{ we continue} \\ \text{this} &= \text{that.}\end{aligned}$$

On this equation (and this assumption) is built up the whole of science, or what we have called TRUTH.

But scientists are often human: we find them using, for instance, such phrases as "*E pur se muove.*" This is not merely a statement of truth: the author is betraying certain διαθέσεις ψυχῆς; the phrase may contain truth: but it also contains something of the nature of an expletive, something of the emotional attitude that introduces the name of God; we have, in fact, a clear streak of STRUTH as well as TRUTH.

Our ignorance of the origins of language is immense;

but if we keep clearly before us the difference between the pattern (or the "thought") and the label (or the expression) we are tempted to suppose that in the most rudimentary stages the pattern was highly individual and personal, and the expression purely expletive. A dog's patterns must represent a very advanced stage of composition and intellectual comprehension. We may reasonably imagine a dog being continually in the attitude of asking "Who is that smell?" or "Who is that noise?" or "Who is that patch?" The expression of his thoughts, which may be too subtle for us to analyze, seems monotonous. In other words, the dog has a "language" that is highly ambiguous. We are told that in Brazilian the one word *tuba* may mean his father, or he has or he is a father, as if this were a peculiarity of a primitive language. We might as well conclude that French is a rudimentary language because the word *à* requires no less than twelve columns in Littré's dictionary. It is a very bad (but very natural) mistake to suppose that because an expression looks awkward to us, it *is* awkward. The phrase "rudimentary language" is useless. We have to deal, on the one hand, with patterns of *thought*: these we call rudimentary if they strike us as inferior to our idea of highly developed patterns of thought. It is open to Gough to say: "the Upanishads are the loftiest utterances of Indian intelligence. They are the work of a rude age, a deteriorated race, and a barbarous and unprogressive community."¹ My dog has every right to say the same of my work, and he could say it in one word. On the other hand we have *expression* which is more or less convenient (and convenience is largely a matter of habit): the Greek particles are a curse to some minds, the Russian verbs a puzzle to others, such phrases as the Japanese: *Inu to iu mono wa*, or the French: *qu'est-ce que c'est?* may seem to foreigners absurdly cumbrous; on the other hand, a

¹ A. E. Gough, *The Philosophy of the Upanishads*, 1882, p. 268.

himalayan amount of meaning is often carried by one word in all languages: it is only relatively convenient to use such expressions as *sour grapes* or as the Japanese proverb *Hotoke no kao mo san-do*, which Chamberlain translates by "Even a Buddha's face can only be tickled thrice" (or the crushed worm will turn). It is not necessary to multiply examples. Expression is clearly convenient, good, beautiful, highly developed and so on, only if it happens to take the judge's fancy. But thought and expression may always be classified as colored or colorless. "Color" is the result of the intrusion of personality. This subtle change, as if the sun suddenly shone on the words, may be seen as follows: in languages (such as Japanese) that have no relatives we get phrases like "*Yesterday came man*," for the thought we express by "*the man who came yesterday*." At present this phrase is colorless: it is a term that might enter into an equation. But if we invert and, instead of saying "*the man who came yesterday*," say "*who came yesterday? —the man*" (this is perhaps the earliest form and origin of the relative) we at once introduce the presence of a speaker and a hearer. When a child says "*Three sevens are twenty-one*" we call it truth. When it says "*Three sevens are twenty-one, aren't they?*" we have that perplexing expletive, which turns colorless truth into a highly colored specimen of struth: and the answer whatever it is (unless the child happens to have an exceptional parent) will mean something like "*I think that is what we said before*."

It is perhaps impossible to prevent the language that is in common use from being colored. If the Buddha and Socrates had invented new symbols for their thoughts instead of using chameleonlike symbols which everybody thought he understood, we might now be able to write the history of two sciences, instead of having to write the history of two religions. Geometry has been made possible

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because (though even here color has crept in) circles and points were called A, B, C, or D. All serious sciences have had to fall back on a specialized form of expression which gave an impersonal quality (as far as this can be done). How dangerous ordinary language is may be seen if we consider a common opening to mathematical expositions: "Let. . ."—here is already a flavor of struthfulness: all imperatives presuppose two (at least) persons—like our expletive "Gee! up!" It seems likely that, in early forms of speech, there were words like "up" that stood for a command when the observer was feeling aggressive or a noun when the aggressor was feeling observant, as for instance in face of a steep hill which he wished to get to the top of. Be that as it may, our scientist would be well advised to leave out even such apparently colorless words as *if* (*given*) and express in a strictly colorless symbolism his successive steps

- (1) $a = 3b$
- (2) $a = 2b + b$
- (3) $a - b = 2b$

To sum up: there are three kinds of truth and three kinds of knowledge. What we have called TRUTH is got by equations and the elimination of personality. There are two ways of eliminating the color of personality (1) by turning out the light altogether and getting darkness: what we have called KI and RUTH; (2) by getting a pure white light (as it were by fusing all personalities into impersonality) which may indeed (either intentionally or unintentionally) be split up, but which, the moment it shows traces of the color of personality, ceases to be TRUTH and becomes what is, scientifically considered, nonsense; socially considered, that very valuable and illogical kind of logic known as common sense or, as we prefer to call it, STRUTH.

IX.

If we drive analysis right home, pure philosophy leads to nescience and everyday language to non-sense. The language of science produces sense by the use of equations based on the fundamental assumption that we are justified in saying *this* = *this*. It must not be supposed that this is anything more than an assumption that is justified only because it is, within its limits, true enough. Much confusion is bound to arise the moment we assume that *this* is indeed equal to *this*. We have seen that every *this* has an infinite remainder which we can, up to a certain point, afford to ignore: it is therefore clear that, even in the department of knowledge to which we have limited the use of the term "truth," we are able to proceed only because we refuse to recognize, on either side of the equation, the presence of immeasurable variables. The equation should be *all this* = *all this*: and it is by dropping the *all*, with which we cannot deal, that we can conveniently handle the *this*.

If I say that water boils at such and such a point, and always boil my water in the same room, I may not discover that this truth is only true enough; but, if I boil my water high up in the mountains, I shall find errors in my calculation, because part of the infinite remainder has become relevant, showing that our *this* = *this* is no longer true, because our *this* was too strictly defined.

In the same way it has been assumed that time and space could be treated always as if 1 hour = 1 hour or 1 yard = 1 yard. Within limits—and the limits in this case have only recently been reached—these assumptions are true enough. But it is often forgotten that they are assumptions which can only be treated as absolutely true for the sake of convenience.

The statement that this is not really equal to this is described sometimes as outside common sense. This is

precisely what it isn't. As we have seen it is science and not common sense that affirms that *this man* is the same as *this man*. The statement is a palpable fiction, which common sense is far too wary to assume: it is much safer in practical life to emphasize the variables and to act on the principle that *this* may have been a very good boy half a minute ago, but there's no telling what *this* may be in half a minute's time. Ladies, too, know quite well that a dress in a sense remains *the same*: but is it the same on her? Two men use the same words: are they the same? It is amusing to find commonsense accusing science of talking non-sense when science has for a moment allowed common sense to intrude into the field of fiction in which it is wont to work.

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LONDON, ENGLAND.

A MECHANIC ON THE "MECHANISM OF THE BRAIN."

FOR many years it has been evident that our bodily organs, our kidneys, stomachs, toe nails, are complicated mechanisms of the same type, though of vastly higher degree, as storage-batteries, engines or other mechanical manifestations of physical and chemical laws. General physiology has made marvelous advances in recent years, in explaining many of the details of the identity. Extension of these ideas to mental processes has been made by some psychologists and by some mechanistic philosophers. These ideas have not, however, gained the currency which they should and are by no means as universally admitted as they should be.

Furthermore, there is a vast gap in all analyses of the mental mechanism with which I am familiar, between the furthest advance which physiology has made in actual analysis, and the study of the actions of the complete machine with which most psychologists and philosophers begin. I am neither a philosopher nor a psychologist nor a physiologist, but am familiar with the grosser forms of machinery and have had experience with the analysis of material mechanisms. I feel that my point of view is useful in such analysis of the mental mechanism as will fill up the gap mentioned, as well as in the giving of more currency to mechanistic methods and elimination of "psychical" things beyond the domain of physiology.

I have tried to be very conservative, to be tolerant of other view-points in the matter, and to be duly judicial in all of the discussion. I feel, however, that the future will show that much more radical statements are justified.

I. INTRODUCTION.

The Vast Difference in Scale of Natural Phenomena.—

As a beginning, we emphasize the commonplace that difference in degree does not necessarily mean difference in kind. The undisputed fact that the operation of the brain is complex beyond all conception does not of itself prevent us from putting it in the same class with the vastly simpler mechanisms whose operation we relatively understand. For instance, we can lift and form a conception of small masses. We can build cranes and lifting-mechanisms which handle masses weighing many tons. We can learn of the vastly greater mass of some of the planets, or of our own sun. We can read the astronomer's accounts of other suns with still greater masses. The ratio of the mass of such a sun to a mass which we can lift is a number with such a long string of o's, that we have no conception of it. There is a similar situation in the descending scale as we go from a mass which we can lift to individual crystals, to molecules, to atoms and to electrons. Yet the mass of an atom is the same sort of thing as the mass of a distant sun even though there is a difference in degree beyond all conception.

We can measure and have an intimate knowledge of an inch or a foot, and can have a vague idea of the distance to the moon. There are successively greater distances to the planets, to the fixed stars, and to other stellar systems, distances which light travels in a hundred thousand years. In the descending scale there are the thousandths and ten-thousandths of an inch which a mechanic can measure, the lengths of light-waves which a physicist can measure and the interatomic distances which a physicist can compute.

The ratio of the least of these distances to the greatest is again a number beyond conception, yet they are of the same kind and differ only in degree.

The machines which we know and can understand have enormous differences in complexity. A person not versed in mechanical matters has intimate knowledge of simple machines, such as a can-opener, or a crow-bar, but no real working knowledge of such a machine as a clock. Farther up in the scale of complexity are machines such as those for setting type and for printing and folding newspapers. The design and construction of such machines can only be handled by persons with great natural ability for the subject and long training in it. Without meaning any disrespect, I venture to say that the average psychologist will grasp with difficulty the intricacies of a modern high-speed newspaper press. A further step in complexity is the cell-system of a low-grade plant. Successively further along in the scale are the organizations of a high-grade plant, of a low-grade animal, of a frog, and so on. There is no reason *per se* why we should assign any other difference than that of degree when we finally come to the human brain.

The intricacies of a modern newspaper press may bear the same ratio to the intricacies of the cell-system of the brain, as an interatomic distance bears to the distance to the farthest misty nebula. We call the latter things "distances" even though they differ in degree beyond all conception. Why may not the former things also be in one class even though they too differ in degree beyond all conception?

Historical Advances in Mechanical Conceptions.—For many centuries our knowledge of the physical world was that obtained by the speculations of philosophers, based upon the gross evidence of our senses. But presently we

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found that the earth was round even though it appeared flat to our senses, and that the earth moved even though it looked as if the sun did. We once believed that the lightning was caused by the wrath of the gods and we peopled all nature with spirits. We must admit the possibility that we have been doing similar things in connection with the processes of the mind. We must hold ourselves ready to advance as far beyond the conceptions of mental processes held by the Greek philosophers as we have in the conceptions of physical processes. Just as we have substituted osmosis, cell-chemistry and other elements of a completely mechanical theory for the idea that there is a nymph in every tree, so we must not hesitate, if need be, to make similar advances with higher forms of life.

Aptitude for Studying Mechanisms.—The conception that the earth is round was a difficult one for all but a very few when the doctrine was first promulgated. Even yet the minds of children and of lower races cannot grasp it. It is only because it has been made familiar to us by experience that we entertain it without doubt. Similarly, it is comparatively easy for one who has been brought up with machinery and who has worked with and studied successively more and more complicated pieces of mechanism, to throw over non-mechanical conceptions and to believe that the brain is a complicated machine. I feel that a psychologist in order to give these matters intelligent consideration must have some such mechanical aptitude. The true mechanic has a keen delight in viewing a new type of machine, in watching it perform its various functions and in studying the methods by which it operates. The designer whose brain has given birth to a piece of mechanism has an indescribable pleasure in starting it up for the first time and watching its operations, if it so be that the machine runs successfully the first time. More

often, there is birth travail and painful labor before successful operation is obtained. The glory of the final success certainly equals that described by painters and sculptors who have completed masterpieces. Something of this mechanical point of view must be understood by one who would make progress in the present discussion. The properly prepared mind has no difficulty in taking up the hypothesis that the brain is nothing more than a vastly complex mechanism, and discussing all of the arguments pro and con in a sympathetic way.

In the present study of the mechanical brain we are in the position of a mechanic who must analyze a complicated machine merely by external observation and by examination of the effects produced. It is as if he must explain a printing-press by examination of the external wheels and levers and by seeing the paper fed in and the printed sheets discharged. However, nerve and brain physiology is making rapid advances and some day will give us a good idea of the internal brain-processes.

II. MACHINES IN GENERAL AND MEMORY IN PARTICULAR.

Mechanism of Memory.—With a conception of the possibilities of mechanisms and with a mind untrammelled by ancient philosophy, let us begin by discussing the phenomenon called "memory." Somewhere and somehow the brain makes a physical record. In this, as in most other parts of our subject, there is no physiological knowledge as to how this is accomplished, so far as the writer knows. Nevertheless, there must be a definite memorandum of everything we remember, of the nature of a phonograph record. It is easy to make a mechanical theory of the action. An original environment is "perceived" by our senses and some sort of a wave or pulse or other transmitting action proceeds along sense-nerves and directly affects certain brain-cells so as to cause some sort of reac-

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tion. The mechanism of the "perception" and "transmission" is not our immediate purpose and will be discussed later. The effect on our brain-cells we call "consciousness," the mechanism of which we also will discuss later. For the present we need merely note that "consciousness" consists of some sort of physicochemical action on brain-cells. That is to say, certain cells out of the vast group in the brain, connected to certain sense-nerves, are oxidized, or nitrogenized, or ionized, or electrified, or made to attract or repel each other, or to have their molecules or atoms or electrons rearranged through electrolysis, or affected in some such way, by the pulse transmitted by the sense-nerves. The exact action is complex beyond all possibility of conception at present. At the same time that the "consciousness" is produced, the pulse passing along the sense-nerves also makes a record of itself, by sensitizing or energizing or creating certain "memory-cells," which record is preserved and stored up.

When the remembrance is later called into action by admission of blood into a particular channel, or expansion and contact of a particular nerve, or some such physical connecting-up of a particular group of memory-cells by association, it simulates or reproduces the sense-nerve reaction on the brain-cells by producing on them a physicochemical action like that produced by the original consciousness. That is to say, we may define "memory" as a stored-up record produced by the sense-nerve pulse at the same time it is producing the physicochemical action called "consciousness," which is later rotated into the field of action or recalled by association, and then simulates or reproduces the effect of the original sense-nerve pulse, which results in reproduction of the original physicochemical action or consciousness. The muscular and other reactions initiated by the original or memorized consciousness we

discuss later and for the present confine our attention only to memory.

Memory does not reproduce an original environment, but does reproduce the mechanical impressions which the environment produced. There are a number of familiar machines which act similarly. The phonograph recorder is subjected to the environment called singing and reacts to it so as to preserve a record which later, when the record disk is inserted, yields "sounds" which impress the atmosphere, our sense of hearing, etc., as being a reproduction of the original particular environments, and which initiate effects such as vibrations of the room walls, pleasure on the part of the hearer, etc., just as the original would have done.

A photographic plate with proper lenses reacts to an illuminated scene so as later, when brought out and held to the light, to yield a picture which impresses the surrounding light-wave medium and our sense of sight as being a reproduction of the original scene. So the sound-waves given out by some one speaking to us are transmitted by the ear-sense and the hearing nerves to certain brain-cells which give "consciousness" of the sounds; as well as to certain "memory-cells." These latter preserve a record which later, when association recalls it, impresses the brain-cells as being a reproduction of the original consciousness of the speaker's words and which can cause us to act as if we were hearing the words. In other words, we "remember" what was said and act as if we really heard the speaker. I say to the servant, "Close the window at once," and he reacts accordingly. The environment produced by the sound-waves of my voice reacts so as to directly initiate certain motions on the part of the servant.

On the other hand, I say to the servant, "Close the window if it rains while I am away." A record is made by his memory-cells. Afterward, if recalled by the presence of rain, the memory-cells produce the same physico-

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chemical action on other brain-cells as my direct command would have produced and the motions which close the window are indirectly initiated.

The conclusion sought is that it is a purely mechanical matter to store a record of an original environment, such that there is later reproduced not the original but an effect the same as produced by the original, and which effect initiates reactions the same as did the original. The memory does no more than this, so that it does nothing that cannot be explained on mechanical grounds.

The mechanism of memory has been used as an introduction because it seemed to have the nearest mechanical analogies. Indeed, it might have been admitted by present-day psychologists that storage of memories is a mechanical operation, because of general familiarity with phonographs, cameras and the like, without the preceding discussion. This would not have been the case twenty years ago, however.

Nature of a Machine.—Before proceeding with further examination of the machine-like action of the brain it will be well at this point to define what is meant by a "machine." A machine is an organization which reacts to its environment in a manner governed solely by the natural laws of physics, mechanics, chemistry and the like, as applied to the condition of the machine and the environment of the moment.

The well-known mechanistic philosophy makes the point of the ability of an omniscient being to predict the action of all machines for all time. I am rather vague as to what "omniscient" means so that I do not desire to make this particular point. However, I suppose it may follow from the definition.

The point I do desire to make is that all of the reactions of a machine to its environment are purely matters of

natural laws, some of which we study in our text-books and many of which we do not yet know.

The waves dashing on a rockbound coast form a machine, and the shape of the spray clouds, the form of the billows and the sound of the beating waves, all follow directly from the shape of the rocks, the intensity of the wind and the occurrences out at sea which started the waves, all acting according to the law of hydraulics. There is no reaction other than that produced by these laws of hydraulics as applied to the particular rocks and air and water molecules at the instant.

Our thesis is the demonstration that the brain is a similar sort of machine, of course of extraordinarily complex character. There are various cells consisting of carbon, hydrogen, oxygen and other elements, each minute portion containing billions of atoms and electrons arranged about each other in many different ways. Each atom is a planetary system which reacts on its neighboring atoms according to laws of radio-activity, molecular attraction and what not, so as to produce vastly complex molecules of all kinds which in turn form cells of various types in an endless variety of permutations and combinations. The cells of the brain are affected in various ways by the blood and by secretions from the glands which circulate in the blood and by the sensations transmitted to them from sense-organs, and by the food, chemicals or narcotics which have been taken into the body. These various things oxidize or reduce, or have various physical or chemical actions upon the cells so as to affect them in various ways, and the net result is a thought or a muscular action or the driving of a nail or the writing of a word. I have no doubt that in due time physiologists will analyze all these effects in great detail. Even now we know the ultimate effects of many things on the mind though we cannot yet analyze the exact mechanisms by which these effects are produced.

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We know that alcohol has a chemical effect on the brain-cells which produces the well-known mental actions of an intoxicated man. We know that opium produces certain pleasant thoughts. We know that when a female animal is "in heat" the secretions from certain glands cause tolerance of the opposite sex. We know that certain stomach secretions produce nightmare, and so on ad infinitum.

Many modern psychologists will probably admit the doctrines mentioned up to a certain point. For instance, they may admit that a plant is a machine but will claim that something beyond the laws of physics and chemistry separates plants from animals. Some may go a step further and admit that the starfish or sea-anemone or some other lower organization of cells can be explained purely by physics and chemistry but invoke extraphysical laws beyond this point. Still other psychologists draw the line between the brains of brutes and the brains of human beings. I draw no line whatever and will attempt to show that even reasoning is mechanical.

III. PERCEPTION AND CONSCIOUSNESS.

Mechanism of the Perceptive Senses.—Next we will consider the "perceptive senses." In spite of any opinion to the contrary, everything that reaches our consciousness from external sources does so by purely mechanical means. All of the senses, by means of which we learn of our environment, are mechanical systems acted upon by mechanical agencies. Psychologists have made good progress in explaining the initial mechanism of many of the senses. We know a great deal, for instance, about the mechanism of the ear and how a sound-wave, by means of the apparatus of the inner and outer ear, starts the pulse along the nerves between the ear and the brain. Similar progress has been made with some of the other senses. The point I desire to make here is that all of our thought originates

in a mechanical way. The music-lover who is thrilled by a symphony had all of these feelings created by compressions and rarefactions of the atmosphere extending from the musicians to his ear. The rhythm and color and the beauty of the music are nothing more or less than the way in which the sound-waves follow each other, the number of different types of vibrations or harmonics produced at the same time, the relative intensity of these different harmonics, the speed or change of speed at which they are produced, and so on. There is no mysterious communion between the soul of the musician and the soul of the hearer, but simply a great number of sound-waves produced as a result of long technical experience on the part of the musician. A good violinist has no more soul than a poor violinist. He simply knows how to bow his strings so as to produce sound-waves which go faster or slower or have more harmonics, etc., so as to affect the ear-drum of the hearer in a slightly different way. There are many who do not thrill and have ecstasy when they hear a good musician. This means either that the mechanism of their ears is not fitted to react to all of the complexities of the sound-waves, or else that the brain-ends of the ear-nerves do not communicate the same impressions to the various brain-cells.

A picture-lover, who receives inspiration from a sunset or from the painting of a great artist, merely receives on his retina a number of bands of color, transmitted by a very complex system of light-waves from all parts of the scene. The entire perception is mechanical and not etherial or mysterious.

The "sense-nerves" or "perceptive nerves" or "afferent nerves" are those which convey pulses to the brain. They are the avenues of "incoming messages." The occurrences at the beginnings or other sensitive centers of these nerves, we define as the "environment." This environment may

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be light-waves of various sorts, sound-waves, chemical or mechanical effects of various sorts affecting the "tasting nerves" of the tongue, gaseous actions affecting the olfactory nerves; heat, cold and mechanical effects which affect the touch-nerves; position which affects the equilibrium-nerves of the inner ear, and other agencies whereby that part of the universe distinct from a being, has an effect which initiates a pulse which is transmitted to the brain. We also include in the environment the perceptions of nerves with internal termini or sensitive centers, such as hunger or satiation of the stomach, the effects of inflammation, abscesses and other internal evils, the effects of toxic products of exertion called "tiredness" and other similar effects whereby occurrences internal to the being are transmitted to its brain. The pulse along the perceptive nerves produces a reaction in the brain-cells at the nerve-extremity which we call "consciousness" and which is next discussed, as well as "memory" already discussed. Mention has often been made of the similarity of this nerve-transmission cycle, between perception and consciousness, to telephone or telegraph or wireless systems. The mechanical nature of both perception and nerve-transmission is generally agreed to.

Consciousness.—The pulse at the brain end of the nerves next causes a brain-cell reaction. A further step is often discussed, the transformation of these cell-reactions into "ideas." There is, however, no reason to postulate any transformation. That mechanical reaction produced on the brain by the pulse from a perception is itself the idea and the matter goes no further. The same perception produces the same mechanical reaction every time, and is the thing we associate with the environment which produced the perception.

A certain environment produces "cold," and after perception and nerve-transmission, brain-reaction of a certain

type occurs. This is the symbol or representation of the cold and is its ultimate effect.

By means of the memory we identify this with previous reactions of the same kind. The kind of reaction in question together with the memorized association with similar previous reactions is the entire substance of our "idea" of cold, and there is no further mental or superphysical process or transformation. When we view a scene with the eye, our outer eye mechanism makes an image on the retina. This part of the process we well understand. We have even made photographic cameras which are good models.

The image on the retina affects countless nerve-ends and is transmitted to countless brain-cells. The resulting group of vibrations or cell-actions or whatever other reaction occurs, constitutes the ultimate mental effect of the scene.

Hence we define "consciousness" as the mechanical or physicochemical reaction produced on the brain-cells by the sense-nerves as the net result of sense-perception of an external environment, and symbolizing or representing it. There is no further transformation to which the term can be applied.

There are many mechanical analogies to this conception of consciousness. A rock lying on the ground reacts to its environment and to occurrences which go on in the world around it. If it is hit with a hammer, vibrations are set up and the fiber of the rock moves to and fro through a slight amount, as is made manifest by the sound-waves. If the sun shines on the rock its parts react in a way which we call "rise of temperature." If a sufficient force is applied the rock moves from one place to another. So in many ways various occurrences in the world surrounding the rock affect it and are "perceived" by it. Is there any difference except a vast one of degree, between these reactions or perceptions and the perceptions of the

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human brain to occurrences round about it? Part of the difference in degree is the immeasurably complicated mechanism by means of which the perceptions are received and transmitted to the ultimate brain-cells, as compared with the crude system of the rock.

IV. OUTLINE OF THE MECHANICAL BRAIN.

Philosophers, Mechanists and Vitalists.—At this stage of our development of the conception of a "mechanical brain" it will be well to consider its relation to the old debate between mechanists and vitalists.

A mechanist must of course have some such conception of a mechanical brain as is here presented, but a vitalist might also admit it. Presumably a vitalist has no repugnance to a mechanical kidney, where the entire operation is a matter of chemistry and physics of the various cells and juices and secretions, after the process is once set in motion. From this same point of view a vitalist can tolerate our mechanical brain whose cells and secretions are subject to similar purely physical and chemical laws after the operations are once started. Presumably a mechanist must also have some "ultimate cause." We can have no conception of a machine which was not made by a mechanic. However, we need not reach conclusions on any such questions. We can discuss the mechanism of the brain without drawing any conclusions in the general philosophical problems of mechanism versus vitalism, ultimate causes and the like. Indeed, such conclusions may be wholly beyond us, just as conceptions of its manufacturer are beyond a printing-press.

We therefore may content ourselves with the admission that we have somehow or other, with an origin which is not our present problem, a "physical universe," which is a system of mechanical, physical and chemical elements reacting according to certain chemical and physical laws.

That is, we postulate, without philosophical discussion, that there is a natural world full of atoms and molecules and cells, reacting according to a fixed code of laws, and external to the thing we call the mind or "brain."

The "mechanical brain" is, then, merely an assembly of molecules in such a world, and is the same sort of thing as a rock or a lake or a glacier or a coconut or a printing-press or any other assembly of molecules reacting upon each other and upon their environment according to the circumstances of the minute, and the code of laws. We discuss the composition of the rock or the theory of the glacier or the action of the kidneys in health and disease without introduction of philosophy of ultimate causes, and the mechanism of the brain can be discussed in the same way.

We can trace the action and interaction of the wheels and cams and levers of a printing-press, without consideration of the ultimate constitution of the matter composing the parts or the fundamental difference between an iron or copper atom or how either atom originated, and without philosophy of any kind.

Similarly we may discuss the physiology of the mechanical brain, and in time learn of its action just as we learn of the action of a printing-press. We can do this without ever raising the question as to whether or not we are so finite that it is fruitless to philosophize more deeply.

We will find that we can account for all of the occurrences without recourse to superphysical or psychical actions. True, the physical and mechanical actions are extraordinarily complex but we will find no reason to suppose that they are anything other than complicated manifestations of laws whose simpler aspects are familiar to us.

Résumé of Mental Actions.—We may now resume our analysis of the brain-mechanism from the point previously

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reached where a cell-reaction called "consciousness" was produced at the end of a cycle of mechanisms beginning with sense-perception of an environment.

We have discussed the mechanism of the memory which has power to give reproduced consciousness.

The successive reproduction of past environments by such reproduced consciousness we call "thinking." This action we will examine in detail at a later point. As a result of present and past environments, that is, of the sense-perceptions of the instant and of remembrances called into action by "associations" which we also discuss later, there is produced a resultant consciousness in the cells at the ends of the sense-nerves. When these cells are thereby sufficiently charged or saturated they excite a corresponding combination from an adjacent group of cells at the ends of muscle-nerves carrying "instincts" and "habits," and we have an "impulse" to act. This effect we also consider in detail later. The instinct- or habit-cells, when they are thus excited, act on the attached muscle-nerves, which transmit a pulse to certain muscles. These then execute that action which corresponds to the excitation of the particular instinct- or habit-cell combination. We here only mention the relation of these actions to each other as an introduction to detailed study of each of them.

We pause for a brief and final mention of the "muscle" or "efferent nerves" which transmit pulses or "outgoing messages" from the brain and which cause such chemico-physical actions at the nerve-ends as produce muscular motion. It is generally admitted without question that the entire action is mechanical so that we need not devote time to this point. The action is more or less similar to that of the pulses along sense-nerves already discussed and has similar mechanical analogs, such as telegraph or telephone transmission.

The important point which we propose to demonstrate is that the "impulse" to act is a purely mechanical correspondence of a certain one of the untold millions of possible combinations of reactions of the cells at the ends of the incoming nerves which carry consciousness, with one of the equally numerous combinations of reactions of cells at the brain-ends of the outgoing nerves which initiate action.

A very crude analogy is the "player piano." In it, the environment consists of the rate at which the music roll is fed, the adjustments for intensity of the sound and the various other manipulations of the operator. These with the record made in the past, represented by the perforations of the music roll, and corresponding to memory, cause a combination of conditions remotely resembling consciousness. This combination initiates an effect on a certain combination of mechanisms which results in the sounding of a musical chord. There is a remote resemblance between such an initiation and an "impulse" and between the sounding of the chord and an "action."

Another analogy is the "relay" often used in machinery. An incoming effect, such as the motion of a governor in a steam-engine, or a long-distance telegraph message, is not itself transmitted, but serves to actuate the relay mechanism, such as the application of power to the engine-valve mechanism or the telegraph relay-sounder, and this relay mechanism then performs such action as corresponds to the original excitation and the relay structure.

The brain-cell system which receives the impulse from a consciousness and which starts a pulse along the muscle-nerves has an inherited structure which inevitably produces certain actions called "instincts." Through the influence of environment, other actions called "habits" may be "learned." We proceed to the detailed discussion of these matters.

V. INSTINCTS AND HABITS.

Instincts.—A man or other animal which is born with the brain-cells which perform the cycle just outlined, has what are called "instincts" to perform certain acts under certain circumstances.

As an introduction to the discussion of this matter, consider the systems of cells which constitute the hairs of a leopard. The prehistoric leopard was born with a nucleus which, with proper nutrition, grew into a certain hair system. Then the wonderful occurrences of evolution, such as the "law of natural selection" and "survival of the fittest," began to take effect. Thus a system of hair-cells was finally evolved which is either neutral or helpful to existence. Each modern leopard is born with an evolved nucleus which inevitably grows into a general hair system resembling that of all other modern leopards but nevertheless having individual peculiarities. There are spots, whiskers, down, etc., each hair of which is itself a universe of living cells.

The hair system automatically reacts to its environment in a simple way, growing when the root-cells are nourished, falling out when diseased, varying with temperature, etc., all inevitable results of natural laws applied to the cell-system.

A more complicated cell-system is the digestive apparatus of the leopard. This, too, was evolved according to natural laws so as to give a system whose reactions to environment were better and better adapted to maintain the existence of the leopard family. The secretions and juices of the stomach and other digestive organs and all of their operations are automatic, mechanical reactions to environment, the inevitable result of the pressure and chemical actions of food, and other environmental conditions, on the existing cell-organization.

Furthermore, the entire digestive organization and its reactions, complicated as they are, are entirely the result of evolutionary processes.

A further step in complication of cell-organization is the system of brain-cells which determines the "instincts" of the leopard. When the stomach-nerves have the environment of satiation, warmth, etc., and when the general environment gives the complex condition "contentment" the leopard gracefully rolls over and lazily curls his paws in a well-known manner. There seems no reason for assigning any other cause for these actions than automatic cell-reactions to environments, of the same kind as in the hair system or digestive system, but of greater complexity. Similar remarks apply to all other actions commonly called "instinct."

A chicken hatched in an incubator, and raised by itself in a brooder and never seeing another chicken, so that it has no means whatever except "instinct" of conducting its life, will scratch, drink, set and mother a brood of new chicks just as its ancestors did.

Such considerations lead us to define an "instinct" as the brain-reaction which is the inevitable mechanical consequence of an environment on the evolved brain-cell organization. Each instinct is in process of definite evolutionary development just as is any of the other cell-organizations of an animal. Much of this is probably admitted for animals, and the extension here made is to many of the so-called mental processes of the human brain.

As we have defined it, an instinct is essentially an "inherited" mental process. In addition, as already remarked, the brain-cell organization is subject to change, resulting in "acquired" mental processes called "habits" which are discussed later.

We postulate that the brain-cells which carry instincts and habits and which are at the ends of the outgoing or

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muscle-nerves, are an entirely distinct set from the consciousness-cells at the ends of the sense-nerves.

Men who hunt or fish for pleasure retain instincts evolved during the prehistoric period when such instincts preserved existence. Many instincts (as for instance that desire to subject the ear-drum and connected nerve-system to certain complex air-waves, called "love of music") are probably neutral so far as preservation of existence is concerned.

All instincts are transmitted according to the laws of heredity studied by Mendel and his successors, in a perfectly mechanical manner. That cell-organization of parents which produces a given instinctive action when aroused by consciousness due to a given environment, is transmitted according to the same mechanism as governs the transmission of the characteristics of sweet peas or fowls.

A "prodigy" performs certain acts, such as arithmetical feats, with extraordinary facility without instruction. The fact that the process is entirely automatic and instinctive indicates that it has some sort of mechanical nature. So far as I know there has not been sufficient psychological study of the matter to even indicate the nature of the mechanism. It is probably some sort of an instinct as above defined.

Reflex Actions.—This term is used by different psychologists to cover quite different regions. There are often included various effects of environment which are relayed by brain-cells. These are covered by the "instincts" just discussed since relaying by a central brain is the distinguishing characteristic.

Blushing and certain sexual effects are often called "reflex actions." However, they may be caused by stored memories of environments, as well as by original environ-

ments, which means that a central brain participates. Hence they are properly "instincts" as we have defined them.

We have already demonstrated the mechanical nature of "instincts," and the same remarks apply to any instincts which may be termed reflexes.

There are also nerve-centers, "ganglions," and the like in various parts of the body which receive incoming nerve-pulses and deliver outgoing ones without transmission to a central brain. There are thereby produced beating of the heart, breathing, digestion and the like.

The term "reflex actions" is often limited to these cases. As the brain is the only organ which stores remembrances, effects such as these in which the brain does not participate, cannot be produced by memory. Such effects are obviously mechanical and they need no further discussion.

Habits.—The organization of brain-cells at the ends of the muscle-nerves, which carries our instincts, is not immutable, but varies from time to time. The reactions produced by the consciousness of a given environment depend upon the exact condition of the mechanism at the instant. There are well-known temporary changes produced by the toxic effect of tiredness or illness, the stimulation of joy and the like. There are also more or less permanent effects produced by education which are popularly called habits.

The brain-cells in question, when excited by a given consciousness, may from any temporary cause react in a certain way, resulting in a certain action often more or less circumstantial. The way is then paved for an easier performance of the action when the same consciousness arises a second time, and so on. Presently some sort of growth is established and a habit is formed. Then the cells at the brain-ends of the sense-nerves will as a result of a given consciousness and the impulse it causes on the cells at the ends of the muscle-nerves, finally produce a

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definite muscular action called habit. There are a number of ways in which habits are formed.

Firstly, there is the training or education of a rudimentary instinct. The environment of a being may be such as either to wholly extinguish such a rudimentary instinct or else to develop it so as to result in the formation of a definite habit. Examples are various aptitudes for handling capenters' tools or machinists' tools or for playing certain musical instruments, the tracking or capturing of prey by certain breeds of dogs, and the living of a wild life by a domestic animal when occasion demands.

Secondly, there is formation of habit due to "imitation." As already explained, an instinct is initiated by the effect of a certain environment on the perceptive senses. An "imitation instinct" is initiated when the perceptive senses are impressed by the performance of a certain action by another being. For instance, the brain-cells of a parrot are so constituted that the impression produced by speech upon its hearing nerves initiates a rudimentary reproduction. Continual repetition gives facility and soon the parrot repeats a certain set phrase. Exactly similar considerations lead a human infant to imitate various acts of those around it, so that it learns to walk, talk and otherwise conduct itself.

Thirdly, there is formation of habit as a result of repetition of actions originally initiated by a consciousness which is due to a present environment as well as to remembrances which the environment has called up. The repetition of such actions educates the muscle-nerves in such a way that eventually but little memory effect is needed and the action is initiated almost wholly by environment. An example is the playing of the piano. The meaning of the notes on the staff, the appearance of the fingers when in the correct position, and other details are memorized. Then the effect on the eye nerves of a bar of music together with associated

remembrance of the instruction, cause the fingers to play the bar. The necessity for the joint action of both direct and memorized consciousness causes more or less hesitation at first. Presently the memory is not needed and the bar is played in an offhand manner, merely from the effect of the environment of the presence of written notes before the eyes. That is, the habit of playing by sight is acquired.

A fourth way in which habits are formed is by repetition of a cause which is accidental so far as the being is concerned. An example is the training of the young, or the training of an animal to do tricks. Through some device or other of the trainer, a given action of the subject is caused to occur in connection with a given environment. Thus, a dog without any reason so far as the dog is concerned, jumps when a hoop is presented by the trainer. Repetition devised by the trainer soon establishes the habit.

A juggler, by some trick of the muscles, executes a certain feat and after patient trial successively repeats it until a habit is established.

Important items in the establishment of habit are the juice-secretions or other physical effects on the whole organism which we call pleasure and pain. Certain environmental conditions stimulate some sorts of mechanical action, either with different individual characteristics or with excess and deficiency of a single sort of thing, and then there arise conditions popularly said to be pleasant or painful. For present purposes the only characteristic of this action which we need to consider is that pleasure serves to deepen the traces of any habit effects with which it is associated. There is some sort of a fixation effect on any habit impressions which have recently been made.

An example is the familiar experiment in animal psychology where a caged animal must perform a certain action, such as raising the latch of a trap-door, in order to obtain food. The general excitement produced by the unpleasant-

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ness of hunger produces actions of all sorts and presently the trap-door is accidentally opened. There is a faint trace of the accidental action which is at once deepened by the ensuing pleasure and a habit is begun. The same thing occurs again with a slight bias toward the correct action. Soon a permanent habit is established. Similarly a child whose hand is in a hot place is impressed by the action of withdrawal, and soon establishes the habit which we term "dreading fire."

Mechanism of Instinct and Habit.—As remarked in the preceding descriptions of these actions, instinct and habit are properties of cells at the brain-ends of the muscle- or outgoing nerves. When these cells are acted upon by an impulse due to the condition of other cells at the ends of the perceptive or incoming nerves called "consciousness," arising directly or through memory, the muscles mechanically perform an instinctive act or act of habit.

Instinct, as a matter of definition, is inborn. A point also to be emphasized is that the nucleus of each habit is inborn also. The effect of education has already been considered, but it can only develop an inborn rudiment. The kind of action of a muscle of course depends on the condition of the mechanism which in turn depends upon the initial inheritance and the subsequent alteration by environmental conditions. We are so used to performing all of the actions of daily life that we may be inclined to think we do these things because we want to, but close analysis will show that we do them as a matter of habit. We are born with a few instincts, such as to cry and to suckle, and we learn by great labor to talk, walk, dress, use a knife and fork and the like. If occasion arises for performance of any unusual action, such as the tying of a complicated knot by a person not used to such matters, or even the use of the left hand, or the ring finger, for a purpose for which

it has not been trained, we make use of such habits as may have been acquired, and move the fingers in a clumsy way. No amount of will or so-called reasoning power will enable us to perform the action the first time. We perform it first as a matter of accident while thus groping around among the habits already acquired, and can only perform it with facility after that education called practice.

These considerations seem to me to establish beyond question that instinct and habit are mechanical effects. The crude analogies of the player piano and the relay mechanism have already been mentioned. The exact action initiated by the consciousness arising from given environmental circumstances, whether due to instinct or habit, is the result of the evolved condition of the brain-cell system as already considered. The differences between the actions, habits and instincts of different human beings, or of human beings and animals, are of the same nature as the differences between their skins or skeletons or any other set of physical characteristics. As already remarked, the passage of excitation of some sort from cells at the ends of sense-nerves to cells at the ends of muscle-nerves we have called an "impulse," and this we will discuss in detail later.

It is to be noted that we postulated that memory and habit are wholly different things carried by different sets of cells connected respectively with the incoming or sense-nerves and the outgoing or muscle-nerves. We remember an environment due to reproduction on the sense-nerve cells of the effect of the original environment. We do not, however, remember how to walk or to button a coat, but have learned to do these things through the mechanism of an entirely different set of cells. Amnesia is loss of memory due to derangement of the corresponding cells and does not affect the habits. Paralysis is loss of power of the muscle-nerves and does not affect the memory. Frequent cases of amnesia are reported where a subject loses

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power to recall stored remembrances due to a disconnection of some kind in the brain-channels. In such cases the habits are not affected and the subject can walk, talk and conduct his life. On the other hand, after some kinds of illness, a patient must learn to walk or to resume similar habits. It is considerations such as these that have led me to postulate that habit and memory are properties of entirely distinct cell-groups.

Most of the organs and cell-groups of the race have been evolved in identical form for both the male and the female sex. There are, however, certain organs and glands with sex distinction. The secretions from these may cause different actions of originally identical organs. It seems probable that the entire mental organization of brain and nerves, consciousness, memory- and habit-cells, is identical in both sexes. The secretions of those sex organs which are different give chemicophysical actions on the brain-cells which cause whatever differences there may be between the aptitudes, tastes, affections and natural instincts of males and females of equal rank in evolution and development.

VI. THOUGHT.

Association and Ideas.—The effect of association in bringing remembrances of past events into play has already been alluded to. We define an association as the action whereby the consciousness of a present environment recalls the stored memory record of a past consciousness so as to renew it. The memory of an event may remain for years as dormant as a phonograph record stored in a cabinet, but when the proper association brings it forward, it renews the original consciousness in a way more or less similar to that caused by a present environment perceived by the senses.

A consciousness due to a present environment recalls a past environment which is similar. A consciousness due

to such a recalled environment in turn recalls a past environment which is either similar or which was memorized at a time near to that of the recalled environment.

As an example, I have just looked at an electric light, and this recalled an incandescent gas light, which in turn recalled a gas plant in Philadelphia and a certain brick building in the plant.

We need spend no time in discussing the wide range of things covered by the term "similar" which are recalled by memory association. There are, of course, a thousand things similar in various ways to a given environment and any of them may be recalled. In many cases there is recalled a composite group called an "idea," which combines many similar elements from past experience.

For instance, I have recalled the sounds making up the word "statue." This in turn recalls the definition of the word, with many shades of meaning, some particular statues, the use of the similar word "stature" in speaking of the shape of a man, and many other things comprised by the idea of statue.

Each time an idea or some element of one is recalled, something is added to it, either in the way of enrichment or intensification. All of the related elements comprising a composite idea are stored together in some way, just as related items are recorded on a single card in a card-index file or as related papers are kept in a pigeonhole. The association tie recalling the idea rotates this pigeonhole to the front, some or all of the elements of the idea come to our consciousness and a new element, due to the present environment which caused the recall, is added to the things already in the pigeonhole. The pigeonhole is then pushed into the background and may not come to the front for years.

When an idea is recalled, there may also be recalled things not a part of the idea, but which were memorized

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at the same time as were some of the components of the idea. Thus the idea of statue recalls to me certain public gardens surrounding a certain statue and the pleasure boats in the garden. Each memorized thing is thus associated with a multitude of other things by some sort of ties, both of similarity and of contemporaneity. A type-setting machine forms a very crude analogy. A multitude of matrices are stored away, and one comes to the front when the proper mechanism operates to call it out. Here there is, however, nothing analogous to the addition of a new element to the thing recalled. Association thus fastens together all of the vast number of ideas or remembrances of past events with a multitude of ties, each idea linked to a thousand others by some sort of similarity, giving a network complex beyond understanding.

As each idea is remembered, it actuates some one of the thousands of links connected to associated ideas and another idea is remembered. The present environment has some influence or other in determining which other idea is brought forth. The fact to be emphasized is that successive ideas do not come forth arbitrarily but always due to some sort of mechanical connection. The association ties are real links of some mechanical sort acting just as definitely to bring forward the associated ideas as do the compressed-air connecting pipes of the type-setting machine. In testing subjects by Binet-Simon methods, one almost sees the mechanical nature of association links.

Our various ideas are more or less deeply "impressed" on our memories. This is, of course, a purely mechanical action whereby the chemicophysical effect which produces the memory record takes place in a more vigorous way so that association ties bring it to mind more easily.

Ideas are of very diverse kinds. Some are results of manifestations of natural phenomena, such as gravity. We see falling rocks or fall ourselves in childhood. We are

later told of the "law of gravity" as being a reason why things fall toward the earth instead of away from it. So each successive item is added, and by the wonderful power of association, each attaches itself to the nucleus of the idea already existing, so that it forms part of the resultant consciousness arising from the recall of the idea at any future time.

Some ideas are said to be "abstract," such as "justice" or "mercy." However, there is always a large concrete element and "justice" brings consciousness of law-courts and arrest of burglars and some specific instance of fair treatment. Each element of an idea has been formed by a consciousness arising from sense-perception of a concrete environment and every idea consists of a complicated résumé of such perceptions. Of course, an essential part of an idea is its name, and the sounds concerned with the spoken word and the image of the written word, form part of the memory record.

One idea which we have acquired partly from instruction during childhood and partly from actual experience, is the idea of "self." It is often stated that one of the important characteristics of the human mind is its power to have consciousness of itself. However, I do not see that this particular idea is more important or fundamental than a thousand others.

It was comparatively easy to formulate a conception of a mechanical consciousness, since we only need to realize, as already pointed out, that some sort of physicochemical reaction must be caused by the sense-nerve pulse, in the brain-cells at the end of the sense-nerves. It was also easy to make the next step, which is that this reaction at the same time causes a brain-cell formation or arrangement which persists as a memory record. It is, however, much more difficult to formulate the method whereby successive additions to this record are made, of things which cause

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a similar consciousness and so are associated together, so as to form the complex cell-organization or arrangement comprising an idea. As already noted, when certain associations recall the idea, there is renewed a chemicophysical action on the cells at the end of the sense-nerves which gives a résumé of the consciousness or original effect of the number of environments which comprise the idea. Thus an idea is a perfectly definite mechanical thing although we are not able to specify the precise kind of cell-arrangement or mechanism which comprises it. I do not believe, however, that the matter is as vague as the conception in the mind of the average psychologist, of the mechanism of our often-referred-to high-speed newspaper press.

It seems to me that the essential difference between the brain of man and brute is the possession of the group of cells which stores remembrances and ideas and recalls them by association. Some of the higher animals might, however, possess the rudiments of such a cell-group. The production of consciousness by environment, the resulting impulse which excites cells carrying instincts and habits, and the consequent muscular actions, seem identical in man and the higher animals. The animal, however, acts only from a consciousness produced by the present environment without influence of stored memories of past environment. As already remarked, we distinguish instinct and habit from memory so that the possession of the latter faculties by animals does not imply the possession of the memory-mechanism. Suppose that a dog has been taught to do a number of tricks, each having a distinct commanding sentence such as "Jump over the chair," "Fetch that stick," "Say your prayers." Suppose, however, that the dog were taught to wait to begin the execution of the trick until the executive command "Commence" were given. I do not believe it would be possible to teach the dog to wait for a period between the commanding sentence and the word

"Commence," if during that time something were done to attract its attention. If the word "Commence" were given immediately after the commanding sentence the dog would, of course, do the proper trick. In this case, the consciousness of the combined commanding sentence and the word "Commence" would initiate the acquired habit as already explained. This consciousness would remain in force until its effect had been accomplished. The attracting of the dog's attention to another thing between the commanding sentence and the word "Commence" would produce a new consciousness. The consciousness of the commanding sentence would then have to be stored or memorized and later recalled by association when the word "Commence" was given. So far as I know no dog or other animal can do this, and this is my reason for believing that animals have no memory. It is probably habit and not a memory rudiment which makes a dog cringe at the sight of its whip.

Thinking.—The train of consciousness effects due to the combination of perceptions of present environments and the successive remembrances of associated ideas brought to mind by the present environments and by each other, we call "thinking."

Each combination affects our consciousness just as does any new environment and makes a new memory record, so that we remember what we think. If the flow of blood or brain-fluid or whatever lubricates and activates the association processes, is in good working order, and if present environments are not impressive and distracting, we are said to be in a concentrated thought. Then past environments are remembered, each bringing in some other by association, and a net consciousness is arrived at, called a "conclusion" or a "decision." We therefore define a conclusion as the composite consciousness which is the epitome

or summation of a train of successive ideas or associated remembrances combined with some present environment which initiated the association train. It is the net result of the entire combination of environments associated with a given thing, which we call experience. In fact, a conclusion not only represents one's own experience but often the entire experience of all previous human existence. Suppose, for instance, I am designing a machine and must select the size of a minor shaft which need not be found by detailed computation. I have learned "Machine Design" and am familiar with machines constructed by previous designers. I thus have a group of remembrances which represents more or less imperfectly all human experience. A certain amount of this is brought forth by my powers of association, when confronted with the environment of the missing shaft size in the design of the machine I am working on. I thus reach a composite consciousness of a shaft size which my experience has encountered under associated circumstances, and I say that I have "thought out" a shaft size which "looks right."

If I have a brain-mechanism whose association ties for this sort of thing operate well, I reach a good conclusion. In any event, the conclusion reached is purely a matter of the remembrance records stored in my brain, the power of my brain-mechanism to associate the sort of thing in question and the present external environment. There is no reason to seek anything else but a mechanical combination of these effects. True, we have reached a stage of mechanical complexity which we cannot yet grasp, but this is not a reason for introduction of non-mechanical effects. We do not grasp the mechanism whereby a dazzling flower is produced from the black earth and the sunshine and rain, yet we do not doubt the mechanical nature of the entire growth.

Those kinds of environment perceived by the conscious-

ness of an individual, those kinds of remembrances which are stored, the way these are associated with each other to form composite ideas, the way they are recalled by association, and similar circumstances, are dependent only upon the physical character of the brain-cell organization, as evolved through countless generations. The habit- and instinct-cells are similarly evolved, as already discussed. There is thereby determined completely the way the individual thinks in any environment just as definitely as the evolution of the digestive organs determines the reaction to food, or as the evolution of any other part of the body adjusts its reactions.

The Subconscious Mind.—We have concluded that successive remembrances brought to the attention of our consciousness by association, each have, to a large extent, the same status as a consciousness produced by a sense-perception of an environment, and are thus again stored as memory records. In some cases the old record is more deeply impressed. We thus remember when we remember anything. It may happen that such remembrances of a train of associated remembrances are not all deeply impressed except for the final conclusion. Hence we may forget the steps of the train and so far as a permanent record is concerned, only have cognizance of the conclusion. Such an action is said to be that of the "subconscious mind." The belief is common that this subconscious mind operates automatically. However, the theory we here seek to establish is that all of our thinking is done in some such way and that the only difference between subconscious thought and ordinary thought is in the depth of the memory-impression of the successive remembrances brought into action by association. Our theory of the automatic nature of all thought due to successive association, is therefore quite similar to the usual idea of subconscious thought.

The psychoanalysis of Freud has shown that in a great many cases a remembrance of a particular environment has formed the genesis of an idea which has associated itself with such other things as to give it great importance, although the original thing itself is forgotten or recalled with difficulty.

Mechanism of Thought.—Of course, the association ties we have discussed are not steel links which inevitably bring forward a definite remembrance whenever the corresponding key is struck. The extraordinarily complex mechanism which calls forth remembrances, is the cell-system carrying consciousness, in its instantaneous condition due to a combination of the effects both of our environment, as perceived by all of our senses, and of remembrances next previously brought forward. Then there is the physical condition of the various cells involved, and the effect of the toxins, juices, narcotics, stimulants and activators due to tiredness, pleasure, pain, ill health, emotion, vigor and many other similar items. In addition the condition of the cell-system where the memory records are stored further complicates the situation. Different kinds of remembrances are recalled with different amounts of facility by different brains. The association mechanism of my own brain handles mechanical ideas with facility and ideas regarding female millinery with difficulty, while my wife's brain is the reverse. All of the discussion previously given regarding evolution and heredity of the cell-system controlling habit and instinct, also applies to the quite distinct cell-system governing memory association. In this way individuals and races have been evolved which think well in certain directions and the memory and association system itself has been formed. As already mentioned, I do not

believe that animals have the power of recalling past environment by memory. Hence they cannot think.

The depth of the memory-impressions regarding a certain subject, and its importance to us, may cause concentration of thought on this subject, and discourage the presence of varied miscellaneous associations which local environment and the like tend to bring forth.

All of these effects have an influence on the train of thoughts teeming through our brain at any instant. The seething consciousness-cells, alive to the effects of all of the surrounding environment on all of our senses, with each such effect crowding along its train of associations, and each of these carrying a new train, give a thought-mechanism of incomprehensible complexity. Yet there is no reason for supposing that there is any effect which is not due to the matter in the brain-cell organization, its past history as manifested by the state to which it has been brought, and the present surroundings both of the cells in the brain and of the being in its environment, all interacting in a perfectly mechanical way.

The normal brain-cycle involves interaction of many individual parts, senses, nerves and cells. Change in the action of any of the elements gives a variation of the cycle. Thus we may have tiredness, sleep, dreams, automatic writing, trance speaking, delirium, drunkenness, insanity, paralysis, amnesia, hypnosis, idiocy, infancy, age, second childhood, and so on. All of these things have a purely mechanical basis. Sleep may be merely the shutting-off of the pulses from the sense-nerves, so that there can be no consciousness of present environment, but only circumstantial recall of remembrances. Analysis of the mechanism of the mental effects mentioned must be postponed for lack of knowledge. Their study from the point of view of the present paper will give more detailed knowledge of the brain mechanism.

VII. REASON AND IMPULSE.

Reasoning.—There are two forms in which the old conceptions of "reasoning" may be expounded, the definite one of "formal logic" and the rather vague popular one. We will endeavor to show that neither conception gives such an adequate explanation of the action of the brain as is given above by our theory of recall of remembrances by association.

Formal logic asserts that we think by "deductive reasoning," in syllogisms, with major and minor premises and conclusions. For instance, take the major premise: "All agencies which produce mechanical energy when no mechanical or heat energy is supplied, produce this energy by transformation of chemical energy which has been supplied to them." A minor premise is: "Human bodies are agencies which produce mechanical energy when no mechanical or heat energy is supplied." The conclusion is: "Human bodies produce mechanical energy by means of chemical energy which has been supplied to them." This is a case of the simplest type of syllogism and is of the kind classified by ancient logicians as being in the figure "Barbara."

I have arranged a rather complicated case, so that a little study is required to draw the conclusion, with the idea that the reader's own effort to verify the conclusion will illustrate the mental processes involved. It seems to me that we draw the conclusion solely by means of associations and past remembrances which the premises recall. We have had experience in past cases where a characteristic common to all members of a class is possessed by all members of any group in this class. Any syllogism in Barbara implied or expressed recalls such associations, and they in combination with the particular premises give that resultant idea called the conclusion.

Following are two more syllogisms both classified as being in the mood "AEE" and in the first and second figures respectively. "All M is P. No S is M. Therefore, no S is P." "All P is M. No S is M. Therefore, no S is P." One of the conclusions is valid and one is invalid. I believe the average reader will make some mental effort in determining which is valid and which invalid. In doing this it seems to me he draws only on his past experience, and reaches the conclusion solely by associations with past remembrances of regions which include or exclude each other. The first syllogism above is the invalid one and the second is valid in the mood called "Camestres."

Another example is: "All birds are vertebrates. Some winged animals are not vertebrates." Can the reader reason directly that a valid conclusion is "Some winged animals are not birds"? This is a valid syllogism in the mood called "Baroko." The theory we have advanced implies that there is no such thing as "deductive reasoning," but that all conclusions are reached in the way called "induction." We make comparison with things of past experience which our association ties bring forth as being similar.

Hence there are two ways in which we certainly do not reach conclusions. In the first place we do not use the rules of "formal logic." There was a time when the principles of logic were considered a necessary part of a good education, but this is no longer the case. A person who has never heard of logic can reason perfectly well. Hence it seems evident that the logicians' analysis of reasoning is not the correct one. In the second place, the conclusion of a syllogism is not directly obvious to a reasoning being. I believe this will be admitted by any one not familiar with formal logic who will work on the syllogisms given above.

It is "popularly" supposed that we reason by an infallible process which gives us the absolute truth concerning given

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circumstances, and which is beyond any material explanation. I see no basis for such a supposition, however.

One point to be made is that reasoning produces nothing new. A conclusion states nothing which is not implied by the premises. A train of reasoning only brings to our consciousness either an independently existing fact, or else something which past associations indicate to be such a fact. A discovery of a scientist, or an invention of an engineer, are in the ultimate analysis nothing but consequences of associations recalled by brains with extraordinary powers of memory and associative ability. As the association ties are calling each other out in a manner depending upon the conditions of the instant, some circumstantial combination may occur. In a mind rich with associations in a given field, this leads to some more definite train and so a novel idea is originated or an invention made or a natural law discovered. Such things really happen with great rarity and most of our thoughts are rearrangements of familiar things.

Each generation learns the things left by the previous generation and adds a little from such novel associations. Wonderful as our progress is, it is really very slow. Eons ago we gesticulated and grunted. After some ages evolution produced a few brains which associated certain sounds with certain environments, and so speech arose and was taught to others. Next written records were made. Some brain in each of a number of races, by some circumstantial combination of associations made a contribution to these advances. Thus arose different kinds of written records, hieroglyphics, ideographs and phonetic writing. There was no definite system of reasoning whereby the successive advances were worked out. Similarly the different arithmetical systems were made by successive contributions of individual brains. In modern times we are building sys-

tems of physical science, engineering and the like in the same way.

Beliefs and Truths.—When an environment of any kind presents itself to our consciousness, whether the germ of a new idea or something which can be attached by association to a previous idea, it forms some material thing which becomes an essential part of our being. An idea is therefore some sort of cell-formation or arrangement which is of the same nature as a finger nail or a digestive gland. For instance, we have the idea that a body falls toward the earth. Anything which recalls the idea of falling involves consciousness of falling toward the earth. There is a clash or inconsistency of some kind if some one remarks that he saw a table rise from the floor. We say that this is contrary to our belief. Our ideas thus constitute a code of beliefs or things we regard as truths. The important point which must be made is that a belief is not necessarily in agreement with natural laws, that is, not necessarily true, but only represents the net result of things presented to our consciousness in the matter.

There is, however, a system which by definition is uniformly true, and this is the code of natural laws. Philosophers and psychologists speak of the "uniformity of nature," but I do not believe they can have such a keen appreciation of the situation as an engineer or other worker in natural science. A novel type of machine or a new bridge construction or a chemical manufacture on a large scale, operates successfully as the result of the combination in the design, of certain natural laws which were ascertained with small models in a laboratory. We must admit that there exists a code of such natural laws which our finite brains can make use of and by virtue of which we can construct mechanisms, plant seeds and conduct our lives, with cer-

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tainty that the final result will depend exactly upon the way the circumstances are controlled.

Our beliefs are true only in so far as they are in harmony with this code of natural laws. Our only means for ascertainment of the validity of a belief is comparison with natural law in so far as we are able.

The evolution of a race depends wholly upon the ability of the brains of its members to conduct themselves so as to exist in the natural world. Hence ability to come to more or less perfect agreement with natural law has been accomplished.

However, we may hold many beliefs which are false, either because we have not compared them with natural laws or because we have made inaccurate comparisons. We have already noted how circumstantial associations of a fertile brain occasionally make a novel combination resulting in an invention or discovery. On the other hand, such a cause can equally well originate a fallacy which, however, has the appearance of truth. By transmission from such a source or by some incorrect combination in our own minds, we obtain such false beliefs. The history of Oriental religions and the history of the beginnings of science show us that men can hold a belief with the utmost confidence which is wholly false. We are loath, however, to admit the possibility that any of our own personal beliefs may be in this class. Yet this is certainly true. "Faith" is the term we apply to our confidence in our beliefs, but it is an uncertain foundation. A certain belief may assist in the evolution of a race and yet be false. Many of the beliefs of ancient and modern religions are false and yet it is conceivable that some may have been of advantage.

The only test, then, of the truth of a belief is comparison with natural law. The mere speculations of philosophers have never led to stable results. Many of the beliefs of scientists, engineers, farmers and others who work with

the laws of nature have, however, been proven true by the success of results of applications of these beliefs. I have certain beliefs in science and engineering and have designed novel machinery based on these beliefs, which has operated successfully. I have by associations of various kinds extended such beliefs to the subject-matter of this article. The extent of the agreement of other observers of natural laws with these beliefs and results of future progress will determine to what extent these beliefs are correct.

We acquire many beliefs from simple statements of others. If the idea involved does not by association recall a similiar idea we have a new belief. If it does recall a similar idea with an opposite conclusion and if we can associate the particular situation with previous general ideas of the impossibility of opposite conclusions, we accept the new belief and modify our idea in the matter, or else reject it, according to previous associations. Thus teachers, exhorters, politicians, preachers, expounders, parents and friends take part together with our own experiences and interpretations of our environments and perceptions of natural phenomena, in giving us a set of ideas and beliefs which are embodied in some sort of cell-arrangement as definite and concrete as the pores in our skin or the hairs of our head.

As an example of the way we reason consider the matter of faith in some religious custom.

In order to avoid the risk of poisoning by a wife, certain Hindus somehow started the custom which soon grew to be an important matter of faith, of burning of widows by suttee. We know that even though many people for centuries had faith that this was a matter of absolute necessity, that it actually was nonsensical. Hence the faith or firm belief of a human being that a certain thing must be so because they feel that it is so, is no reason whatever for supposing that the thing really is so. However, many

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people do not associate this general situation with things they themselves have faith in. Others do make such an association and consequently do not accept things on faith.

Impulse and Will.—We have already formulated the hypothesis that cells at the end of sense-nerves carrying a resultant consciousness of present environment through sense-perception and of past environments through recall of remembrances by association, become by virtue of this resultant consciousness so charged or activated that they excite a corresponding combination from an adjacent group of cells at the ends of muscle-nerves carrying instincts and habits, and so initiate an action. This excitation or "impulse" to act corresponds to the "will" of psychology. Our theory of the mechanical brain of course corresponds to the mechanistic side of the old debate concerning free will, and this paper attempts to outline the mechanism involved.

It is not to be supposed that this impulse to act is as definite a thing as, for instance, the rotation of a toothed wheel when an intermeshing wheel is rotated. The entire history of the ancestors of the individual as affecting the inherited condition of his brain and the entire history of his environments as affecting the brain's present condition, all have their influence. There are no factors which do not exist either in the brain-cell organization or in those external things to which it has reacted according to the laws of nature. It would indeed be strange if there were any accident or caprice in a universe which we find to be so wonderfully ordered, from the smallest details shown by the microscope, to the mighty things shown by the telescope.

Good illustrations of the dependence we place upon such principles, though we do not realize it, are the teachings and preachings to inculcate ethics, morals and religion by parents, teachers and preachers. By adding to or creating in the brain of the subject some ideas as to the thing

we believe to be "right" under given circumstances, we expect to influence the subject in a given future environment. Our exhortation implies a number of things. In the first place, we expect to create an idea in the mind of the subject which will persist until some future time. Obviously we expect that in the meantime it must exist in some way or other. There can be no magician's act which makes a thing vanish and later reappear from nowhere. Now we know that some kinds of environment, such as warmth, have a definite influence on the cells in the interior of our bodies. We know as well that our words have a definite mechanical effect on the ears of a hearer, and start an actual pulse along the nerves to the brain. But this pulse does not trail off into nothing when it reaches the brain. It seems to me that the hypothesis most readily agreeing with other experiences which we have with natural phenomena, and therefore the thing to be believed, is, as already discussed, that the nerve-pulse finally results in a definite brain-cell formation or arrangement recording the idea in a concrete way. The record is later recalled so as to give a simulation of the effect produced by the nerve-pulses from the sound-waves of our original exhortation.

In the second place, our exhortation implies that we expect that upon proper occasion, the subject will act in accordance therewith. We therefore expect that that condition of the subject's brain-cells which we have created, and not some caprice of the subject, will cause action when the future environment arises.

The extent of the association which a given environment arouses in an individual determines the kind of consciousness which creates the impulse. If there are usually recalled a very limited or superficial set of remembrances, the individual is wilful or emotional. If there are usually recalled deeper and more varied remembrances, the emotions are controlled by reason. However, in all individuals

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there are many impulses which are produced by a consciousness only due to present environment without remembrances. Thus we jump when we hear a loud noise and withdraw the hand from a hot place. Such actions we term "instinctive" or "automatic." They differ from other actions only in the type of consciousness which impels them. These are the only kind of actions possible with animals according to our postulate that they have no memory and can only have consciousness of a present environment.

A very crude illustration of the way the impulse-mechanism might operate is as follows. The cells which carry consciousness of sense-perception may lie along a folded surface in the brain on the other side of which lie the cells at the ends of muscle-nerves. A given consciousness consists of expansion by flow of blood or some other form of excitation of a certain combination of the sense-nerve cells. Impulse is the pressure or other effect of this excitation, across the surface, to the muscle-nerve cells, which excites or energizes a corresponding combination of them. This starts the pulse along the muscle-nerves which causes an action.

Thus each group of the untold number of possible combinations of cell-reaction due to sense-nerve and memory effect gives an impulse to that group of muscle-nerve ends which corresponds or matches with it. The correspondence determines that instinct or habit which is called forth in the given individual as a result of given environmental conditions.

VIII. DIAGRAM OF THE MECHANISM OF THE HUMAN BRAIN.

The accompanying figure and explanation gives a résumé of the way my brain associates its actions with the gross mechanisms to which I am accustomed. The application of my own theories to this paper means, of course, that I view this matter from a mechanical standpoint. Time

and study will determine if comparisons made from other standpoints are less accurate.

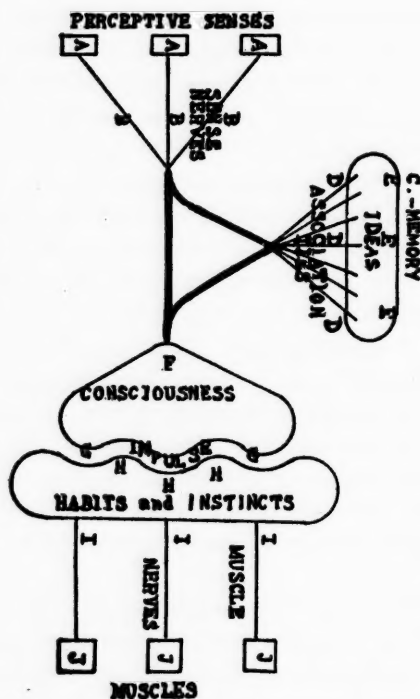


DIAGRAM OF THE MECHANISM OF THE HUMAN BRAIN.

AAA—*Perceptive Senses*: Sight, hearing, etc. Mechanisms affected by various kinds of external environments, forming the means by which the influences of these environments start toward our brain.

BBB—*Sense or Afferent Nerves*: Channels whereby incoming pulses initiated by effects of environment upon the senses are transmitted to the brain.

C—*Memory*: The stored-up record produced by the sense-nerve pulse at the same time it is producing consciousness. When any one of the ideas stored by the memory is recalled by association, it simulates or reproduces the effect of the original consciousness. Possibly the possession of this memory organ is the distinction between man and brute. The memory record exists as a concrete material thing, being some sort of

cell-arrangement or growth, of such kind as will renew the effect of the nerve-pulse which created it.

DDD—*Association Ties*: The means whereby a present consciousness recalls the stored memory record of a past consciousness so as to renew it, due to similarity or contemporaneity. A new element due to the present environment is thereby added to the record.

EEE—*Ideas*: The composite record of similar elements from past experience successively added by association. All or part of an idea is recalled to form a resultant consciousness by an association tie connecting it with a similar present environment. The recall of ideas by associations arising from the consciousness which each one successively produces is called "thinking."

F—*Consciousness*: A physicochemical reaction on brain-cells at the ends of sense-nerves, caused by the pulses from the senses, and constituting the entire result of the sense-perception of an environment. It may arise either directly from a pulse caused by a present environment or from records of such pulses from a past environment stored by the memory or from a resultant of both.

G—*Impulse*: That reaction of the cells at the ends of the sense-nerves, due to a resultant consciousness both of present environments and past ones from recall of remembrances, whereby a certain combination of cells becomes so charged that it excites the corresponding combination from an adjacent group of cells, at the ends of muscle-nerves, carrying instincts and habits.

HHH—*Instincts and Habits*: Reactions of cells at the brain-ends of the out going or muscle-nerves due to excitation by an impulse from cells carrying consciousness. A certain one of the untold number of possible combinations of the instinct- or habit-cells, corresponding to the particular consciousness-cell combination, thereby initiates a muscle-nerve pulse. Instincts are reaction combinations which are inborn. Habits are combinations with an inborn nucleus developed by education.

III—*Muscle or Efferent Nerves*: Channels whereby outgoing pulses initiated by habit- and instinct-cells in the brain are transmitted to various muscles.

JJJ—*Muscles*: Mechanisms of various kinds which perform all sorts of actions when excited by pulses from the muscle- or efferent nerves.

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A DEFECT IN CURRENT POLITICAL PHILOSOPHY.

THE fact that political philosophy has its roots in the past carries certain consequences. In the first place, it follows that the present situation cannot be fully understood without reference to the premodern State: but, on the other hand, the nature of the premodern State must not be taken as fixing the character of the modern State. A consideration of the premodern State as it appeared to the great writers on political theory may therefore be of use not only in tracing origins, but also in bringing out what is peculiar to modern States. The facts that (1) the interdependence of modern States within the modern State system affects the character of each State, and that (2) the modern State excludes religious and other activities, render this contrast necessary.*

There have been, obviously, many different kinds of State, however we are to classify them; and the abrupt division into modern and premodern must be understood to be in some sense an arbitrary one. This being granted, we shall speak first of the segregation or isolation, and next of the absolutism or inclusiveness, of premodern States; especially in so far as those features were recognized and supported by political theory.

The Greek City-State was not in fact all that Plato and

*[A short description of these characteristics of modern States will be found in Mr. Delisle Burns's book on *The Morality of Nations*.—ED.]

Aristotle imagined that it was or hoped that it might be.¹ In speaking of their conceptions, therefore, we shall have to make some reference to the facts that do not quite support them. But, for our present purpose, their conceptions are even more important than the facts; since their political theory has so largely influenced even our modern practice.

The three expressions of Plato's idea of the *πόλις*, in the *Republic*, the *Statesman* (with some part of the *Gorgias*) and the *Laws*, contain slight differences. It is clear, however, with regard to the leading idea in every case, that the *πόλις* is to be as far as possible self-sufficing: the difference in the three great conceptions of the *πόλις* is due only to the lessening importance in the later works of complete isolation. The classes in the *Republic* are intended to make the State self-sufficing.² Let us suppose, then, that all its ideas, all its energies, and all its supplies come to the community from its own citizens or subjects. There is, however, a warrior class among the citizens, for the Guardians are not simply administrators. But there must be, then, some human beings outside the *πόλις*. It is not generally noticed that Plato does not even hint at who they are, how they may be conceived to be organized, or what they may be supposed to be doing. They are merely "outsiders"; and the purpose of one class or section of a class in the *πόλις* as it ought to be, is to keep them off. And yet, even on the assumption that the State has nothing to gain by contact with them, their activities must surely make some difference to the structure or actions of even the ideal *πόλις*. This is simply omitted.

¹ The glaring omissions of Plato and Aristotle are noted in Newman's Introduction to Aristotle's *Politics*. There was interdependence in Hellas (games, music, drama, philosophy, "Homer," etc.) and there was even the beginning of interstate structure.

² *Rep.*, 374a: *τί δέ; ἢ ὅτι. αὐτοὶ οὐχ ἱκανοί*; And Socrates answers that we want all the "arts" in our city.

In the *Statesman* the warriors still have a place;³ but apparently there *was* a time when there was no need of them, according to the myth of the "backward" life.⁴ Probably, if there was a πόλις in existence then, its features would be the reverse of the essential features of the πόλις of this world. But for practical purposes, again, the State seems to need no goods or ideas from the outer world.

In the *Laws* the utility of some communications outside the frontiers of the πόλις is grudgingly admitted,⁵ but only under strict surveillance. Thus in his old age Plato seems to have acknowledged that Athens owed much to non-Athenians: or perhaps he felt that men were too weak to be inhabitants of his Republic.

The same fundamental attitude is to be found in Aristotle, in spite of the fact that he had studied many States. It is astonishing that he did not see the importance of the connections between States. But he, too, abruptly announces that it is the essence of the πόλις to be αὐτάρκης,⁶ and that, he says, "must be the State which is all-producing, for to have all things and to want nothing is self-sufficiency." Aristotle probably saw that the actual πόλις of his day was partly isolated and partly dependent upon foreigners: and he quite seriously maintains that in so far as it aimed at τὸ εὖ ζῆν it was isolated or segregate.⁷ But in practice, the State not being altogether isolated, some reference had to be made to those who did not belong to the πόλις or who might belong to other πόλεις. We arrive, then, at Aristotle's view of foreign interests and foreign policy. It is childish. It reduces itself to the idea that, negatively, the

³ *Politicus*, 309.

⁴ *Pol.*, 270 et seq.

⁵ *Laws*, 950a, 951a.

⁶ *Pol.*, 1252b.

⁷ *Pol.*, 1326b, 27: τοιοῦτην δ' ἀναγκαῖον εἶναι τὴν παντοφύρον. τὸ γὰρ πάντα ὑπάρχειν καὶ δεῖσθαι μηδενὸς αὐταρκείας.

⁸ *Pol.*, 1252b et seq.

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government ought not to rely on foreign aid,⁹ and that, positively, the legislator should have an eye to neighbors.¹⁰ Presumably he may gain something from them; but his essential attitude is thus expressed: "A πόλις must have a military force serviceable against her neighbors and not merely useful at home. . . . A πόλις should be formidable to enemies."¹¹ Conquest is not to be the purpose of the State; but one of the reasons given is striking—it is because the State "happy in isolation" is the ideal,¹² and this in defiance of the fact that Greek States differed from barbarian precisely in their interstate structure and that Athens in particular owed her art and her science to foreign contact.

Even such a summary is enough to show how utterly inapplicable to the modern State system the political observations and ideals of Plato and Aristotle are. This does not involve any lack of appreciation for the exactness and brilliance of their dissection of society, so far as it went; but their influence has been so great that later writers have not been able to see how impossible it is to accept their views even of the *internal* structure of the State as applicable to a situation in which the *external* structure has so modified the whole issue. Even if the Greek πόλις was comparatively isolated, the modern State certainly is not.

When we pass to the Roman theorists, the same limited point of view seems to be prominent; for although nearly all late Republican and early Imperial history is a history of foreign influences, the thinkers still concentrate on the

⁹ *Pol.*, 1294b.

¹⁰ *Pol.*, 1325a: καὶ τοῦτο τῆς νομοθετικῆς ἐστὶν ἰδεῖν, ἐάν τινες ὑπάρχῃσι γεινῶντες, πότε πρὸς ποιοὺς ἀσκητέον ἢ πῶς τοῖς καθήκουσι πρὸς ἐκάστους χρηστέον.

¹¹ *Pol.*, 1265a, 19 et seq. An attack on Plato's *Laws* which accuses Plato of neglecting foreign relations, but implies that the essential foreign relation is that of war. Nevertheless, Aristotle here states the fundamental idea that you cannot consider the nature even of the ideal State without reference to those who do not belong to it.

¹² *Pol.*, 1325a, 1: ἀλλὰ μὴν εἴη γὰρ καὶ καθ' ἑαυτὴν μία πόλις εὐδαίμων: and for the ideal, 1325b, 31 et seq.

internal structure of the State.¹³ Rome in fact dealt with other States as equals (Latin League, etc.) until the time of Trajan; but this hardly affected theory. The *jus gentium* was never a law of corporate national bodies or groups but of individuals. And, in any case, even if this summary statement seems misleading, the influence of Rome has largely rested on the idea that Rome was a World-State. Outside its boundaries was a political wilderness: although beyond the wilderness, almost unknown to the Romans, were China and India, which were later to show that there never has been in fact a World-State. The Rome which became the model for future ages was the Rome of imagination, which was falsely supposed to owe nothing to the political structure of other States and produced an organization which was falsely supposed to include the whole human race.

In the Middle Ages it ought to have been obvious that each of the supreme political units (*regna*) was influenced in structure and action by contact with the others. But the isolated theocratic kingdom of the Old Testament¹⁴ and the Aristotelian *πόλις* so influenced men that they could not see facts clearly. Thus Aquinas regards it as an evil, however necessary it may be, that there should be many *regna*.¹⁵ More original minds saw more clearly. Pierre Dubois recognizes at least the possibility of interstate structure in his suggestions as to an International Council of Conciliation, a board of arbitrators and the avoidance of war.¹⁶ At about the same date (1305) John of Paris argues

¹³ Polybius's contribution, the balance of forces within the State, etc., (*Hist.*, Bk. VI) has no bearing on the foreign policy of Rome. Cicero seems to have vaguely felt that Rome was peculiar in her treatment of foreigners: but clearly there was no conception of interstate political structure (cf. *Pro Balbo*, Chs. XII and XIII).

¹⁴ For this influence see Carlyle, *Medieval Political Theory*.

¹⁵ *S. Theol.*, Ia, IIae. q. CV. art. 1. ad 3. multitudo regum magis est data in poenam quam ad eorum perfectum.

¹⁶ In the unpublished "De abbreviatione guerrarum" and in the "De recuperatione Terre Sancte" (*Coll. des Textes*). See my article in *The Monist*, January, 1917.

that political power must be divided, since "the sword" requires a restricted space for its effectiveness:¹⁷ but there is no clear conception of interdependence. William of Ockham stands apart in this as in other issues. He suggests a representative council of all nations, "all civilized human beings forming one group."¹⁸ And in the work of Nicholas de Cusa, after the Conciliar theories of Church government had developed, a useful contact between races for common purposes is recognized.¹⁹

Here was the possibility of a new view of State structure when the Renaissance began. Political necessity, however, caused centralization, dynastic power and the abolition of the indefinite medieval unity. The result was that, although many States were now recognized to exist and to influence one another—a great step beyond Plato and Aristotle—the influence was thought of in purely negative terms. It was the influence of opposition and not co-operation. Machiavelli argues not merely that States are independent but that they are necessarily opposed. For, among other things, "expansion" is essential to the State.²⁰ His *Discorsi* are commentaries on Livy and what he supposed was Roman history. The Rome of his imagination was his evidence for the essence of the State.²¹ It is interesting, then, to perceive the true origin of the idea of *necessary expansion*. It has nothing to do, of course, with the

¹⁷ Joh. Paris. (in Goldast's *Monarchia* S. R. I.), "De Pot. Régali et Papali," Ch. III: "Non est necesse omnes principes ad unum reduci, sicut ministros Ecclesiae ad unum supremum." Temporal powers must be divided because (1) men differ in body more than in mind, (2) the sword (legal sanction) requires limited space for its effectiveness, and (3) diversity of climate causes *diversi modi vivendi*.

¹⁸ *Dial.*, Ch. 84. "Omnis populus et omne corpus quod absque consensu vel auctoritate cuiuscumque qui non est de corpore potest sibi jus statuere, potest aliquos eligere qui vicemgerant totius communitatis.... Sed omnes fideles sunt unum corpus.... Ergo," etc.

¹⁹ Cf. "De Concordantia Catholica," summarized in Dunning, *History of Political Theory*, and "De Pace Fidei," in my book on *Political Ideals*.

²⁰ *Disc.*, I, 6: "La necessità la conducesse ad ampliare."

²¹ *Disc.*, II, 4.

later excuse for it—"surplus population": it is due to the Machiavellian idea, based on a misreading of history, that one State is naturally hostile to another.

Hobbes asserts that the State is in "a state of nature" with respect to any other State; and this is defined as "the Warre of every man against every man." "In all times Kings and Persons of Sovereign authority, because of their independency, are in continuall jealousies and in the state and posture of gladiators. . . which is the posture of war."²² As between States there is no "just and unjust." "Where no common power, no Law; where no Law, no injustice. Force and Fraud are in warre the two Cardinall virtues."²³ Hence foreign policy is to "weaken their neighbours,"²⁴ and the less contact with foreigners the citizens are allowed, the better it is for the State.²⁵ To continue with the English school, Locke is inclined to the same idea of opposition, but he makes two important changes, (1) in distinguishing the state of nature from the state of war,²⁶ and (2) in pointing out that progress depends on not leaving force in the hands of the interested parties in a dispute.²⁷

In the later Renaissance Grotius recognized the interdependence of States,²⁸ but did not explain it. Nor did he base any argument upon it except the possibility of avoiding famine, revolution or foreign war. The author says that no one has dealt with the moral relationship between States, and he straightway begins to discuss war. Peace is given a vague blessing on the last page of his work: for opposition seemed to be the only obvious and

²² *Leviathan*, II, 13.

²³ *Lev.*, I, 13.

²⁴ *Lev.*, II, 29; II, 17.

²⁵ *Lev.*, II, 29.

²⁶ *Civil Government*, II, iii, par. 19.

²⁷ *Civil Govt.*, II, par. 89. This has an immense possibility of development (cf. below Ch. X) but Locke does not seem to have seen how important it was.

²⁸ *De Jure Belli et Pacis*, Prol. 21: "Nulla est tam valida civitas quae non aliquanda aliorum extra se ope indigere possit." He implies much in the proposal to make or create a connection. The connection was there, actually influencing the nature of States.

essential contact. But a great step was made by the establishment of an idea of International Law and a morality on which that law depended. It is only astonishing that the theories of international law, perhaps because they were obstructed by the obsolete conception of sovereignty in such a man as Bodin, made so little difference to the conception of the nature of the State. The same difficulty obscures the attempts of the Abbé St. Pierre.

At a later date one would have imagined that the international culture of the eighteenth century would have made theorists elaborate an interstate structure, but even Rousseau leaves the subject with a sentence at the end of the *Contrat Social*:²⁹ and yet, if one omits the discussion of "external" relations the whole idea of the State is vitiated. Rousseau, however, saw that the relations between the States of Europe, based upon the similarity of their customs and laws, could be made political. He says in the "Extract" that, in fact, a permanent state of war degrades States. War is not an occasional accident, it is the fundamental institution in the relation of States,³⁰ but he conceives as possible a political unity—a Confederation of Europe.³¹ In one fragment he says, "J'ai trouvé que les liaisons qui subsistent entre tous les puissances ne laisseront jamais à aucune d'elles le temps et la sûreté nécessaire pour refondre sa constitution."³² But on the whole he does not give sufficient place to the influence of other States on the government of each. Kant, under the influence of Rousseau, elaborated a scheme of European confederation; but even he does not define the State by reference to its external contacts. He recognizes, however, that an interstate struc-

²⁹ "...il resterait à l'appuyer par ses relations externes."

³⁰ Vaughan, *The Political Writings of Rousseau*, I, 304, "L'état de guerre."

³¹ Vaughan, *op. cit.*, I, 374. The whole magnificent "Extract" (Vaughan's *Rousseau*, I, 364) is in statement of political observation hardly to be surpassed, even though Rousseau does not allow enough, as it seems to me, to the beginnings of interstate political structure.

³² *Ibid.*, p. 321.

ture would have some effect on the internal constitution of the several States.³³

The Napoleonic wars which intervened, blocked the development of political thought, setting back political structure as war did at the Renaissance; so that Hegel in his *Philosophy of Mind* dismisses the whole of interstate relationship in one short paragraph (par. 547). He speaks as if there were nothing in it but what he calls "the game of war." In the *Philosophy of Right* a few meager sections are given to the relations between States.³⁴ The only foreign relationship discussed is war, which is blandly assumed to be "necessary" (par. 324) to preserve the individuality of the State, and even to be good. The principle, he says, is drawn from history. And what he meant by history may be perceived in his assertion (pars. 355-360) that "world development" shows the four great empires—the Oriental, Greek, Roman and German!

But Hegel lived in a primitive atmosphere. The great changes have occurred since his day. Let us, then, turn to the moderns. The English utilitarians seem to have imagined that the military organization of States could disappear without any growth of interstate structure: and their followers in practical politics stood for the idea of leaving "foreign" States alone. But this, though a step forward from contact which is mere opposition, would eventually lead back to the primitive segregation. And in any case the tendency to slur or omit the discussion of foreign relations was pernicious. Even Sidgwick, although he admits (in a note!) that foreign contacts affect domestic policy, devotes only five out of thirty-one chapters to interstate structure.³⁵ But the idealist school was much worse. Bluntschli divides the *Philosophy of the*

³³ *Perpetual Peace*, par. II, art. 2.

³⁴ "External Sovereignty" (pars. 324-329) and "International Law" (pars. 330-340).

³⁵ *El. Pol.* (ed. 1897), note p. 237.

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State into (1) The State in General, (2) the State in Action, and (3) the State in Ideal. But he goes so far as to say that *the* State is "humanity organized, so as not to break up particular States," and that "only in the universal empire will the true human State be revealed" (English trans., p. 32). This implies that one can define the nature of a State without reference to its external relations. Again, he writes of sovereignty (Bk. VII) as though there were no such thing as the influence of foreign States on the administration of law and government.

Green is almost the only writer who develops at all the idea of the moral relationship between States. In his *Principles of Political Obligation* he deals with this issue.³⁶ He sees that the nature of the State is dependent on its relation with other States (par. 167 et seq.). "The source of war between States," he says, "lies in their incomplete fulfilment of their function, in the fact that there is some defect in the maintenance or reconciliation of rights among their subjects." Again, "War is a survival from a condition in which the State, in its full sense, was not" (par. 172). But even he gives comparatively little space to this, and the weight of his argument rests on the old discussion of the relations between citizens of one State.

Bosanquet, in his *Philosophical Theory of the State*, entirely omits the external relations of the State. The result is that his theory reads like a theory of the lungs with all reference to the air omitted. But it may be that he does not mean by the State what is ordinarily meant by it.³⁷

³⁶ *Works*, Vol. III, reprinted in separate volumes, 1895, pars. 157-175, in lecture K.

³⁷ In the *Elements of Politics* by S. Leacock (ed. 1914), Part I, Chapter VI, is supposed to deal with interstate relations. It is said that "viewed in a purely theoretical light every State is an absolutely independent unity. Its sovereignty is unlimited" (p. 89); which only shows that the theory has no basis in modern fact. In Part III, Ch. III, of the same work we are supposed to hear of the modern State, and all the treatment is of State regulation of economic forces.

Jellinek (*Das Recht des modernen Staates*) refers to international associations (p. 116), to international law and to modern as opposed to the old sovereignty; but the atmosphere of the book is still that of the isolated State. He recognizes that the new situation *ought* to make a difference to theory (p. 722): "Schon an diesem Punkt kann man sehen, wie selbst die losen und doch dauernden Verbindungen zwischen den Staaten, die durch Verwaltungsverträge gegründet werden, auf die Lehre vom Staate selbst ihre Wirkung äussern. Jene Fassung des Souveränitätsbegriffes, die ihn mit dem Merkmal absoluter Schrankenlosigkeit der Staatsgewalt identifiziert, ist mit der geschichtlichen Wirklichkeit der durch ein System der Verwaltungsverträge gebundenen Staaten unvereinbar." But this is only a very inadequate recognition of facts which would, if given their right value, disprove most of what is contained in the remainder of the book.

We have not attempted a history of Political Theory; but the selection of names is sufficient to show the immense weight of tradition in representing the State as essentially isolated or segregate. This *may* have been true at some date; but it certainly is not now. And we have implied that in so far as it was not or is not true, even the consideration of *internal* State structure is vitiated.

When we turn to the other great feature of the modern State, the limitation of its functions to what we call politics, in cooperation with a complex of other institutions for maintaining civilized life, we find the same contrast in all descriptions of the premodern State, descriptions which, again, were only partly true even of their contemporary facts and are wholly untrue of our own time.

It is recognized that the *πόλις* was as much a Church as a State, in our sense of the words; and, whatever may have been the attitude of the Sophists, the devotional phrases of Plato and Aristotle leave no doubt as to (1)

what they thought it was, and (2) what they wanted it to be. Both desired an "authoritative revelation" from a "parochial Sinai,"²⁸ an all-inclusive institution to maintain an all-embracing regulation of life.

Plato in the *Republic* simply assumes that the πόλις is equivalent to the whole of society and not merely to what we call the State. Therefore the classes in the πόλις symbolize the whole nature of man.³⁹ And the argument of the *Republic* as a whole would not be valid if "political" justice had to Plato's mind the special reference to what we call politics. Hence also Plato makes the problem concentrate on education,⁴⁰ and in the *Statesman* seems even to identify "politics" with education,⁴¹ which has meaning only if "politics" indicates the whole science of all kinds of social life. Every activity of man is therefore subordinated to the πόλις, a situation impossible in any modern "State."

Aristotle asserts that the *πόλις* is the highest and all-inclusive institution or organization of life.⁴² But that, applied to the modern State, makes nonsense, as it would make nonsense to say that man is a "political" animal in translating the phrase *πολιτικὸν ζῶον*. For that phrase means that "man naturally organizes his social life," and not that man has only what we call a State. Like Plato,

³⁸ The phrases are Newman's to whom it will be obvious that I owe much of what I have said concerning Plato and Aristotle; cf. W. L. Newman, *The Politics of Aristotle*, Introduction, and notes *passim*.

³⁹ *Rep.*, 368e et seq.: δικαιοσύνη, φρόνη, ἔστι μὲν ἀνδρὸς ἐνός, ἔστι δέ που καὶ ὅλων πόλεως; and the conclusion in 441a: καθάπερ ἐν τῇ πόλει ἐνεργεῖ αὐτὴν τρία δὲ γένη, χρηματιστικόν, ἐπιχειρητικόν, βουλευτικόν, οὕτω καὶ ἐν ψυχῇ τρίτον τούτοις ἔστι τὸ θυμοειδές, κ.τ.λ. Cf. also *Rep.*, 443 et seq. From this and similar passages I should be inclined to maintain that the *Republic* is really not a Utopia, but a first attempt at what we call "Social Psychology."

⁴⁰ *Rep.*, VII, *passim*.

⁴¹ *Politicus*, 306 et seq.

⁴² Pol., 1252b 27: ἡ δ' ἐκ πλείονων κωμῶν κοινωνία τέλειος πόλις ἤδη, πάσης ἔχουσα πύρας τῆς αὐταρκείας ὥς ἔπος εἰπεῖν, γινομένη μὲν οὖν τοῦ ζῆν ἐνεκεν, οὐσα δὲ τοῦ εὖ ζῆν.

Aristotle identifies the "politician" with the educator:⁴³ and this again in defiance of the fact that organizations of all kinds were growing up and making the actual πόλις departmental.⁴⁴

Since we are speaking chiefly of the influence of theory and since Rome provided no new philosophical idea on this subject, we may dismiss her abruptly. But the influence of *legal* theory and practice more than reinforced the absolutism of the Platonic-Aristotelian πόλις. The Roman conception of order implied subordination and not coordination. The "Senatus Consultum de Bacchanalibus" is an indication of the Roman tendency to make the State absolute over all interests:⁴⁵ and the inclusiveness of the *civitas* is to be seen in the complete subordination of other institutions (*collegia*, etc.), which has had an overwhelming effect upon the idea of the State in medieval, Renaissance and modern law.

In the Middle Ages, if we regard the Empire as the most important type of State, the simplification of functions is extreme, at least in theory; all power or organization depending on either Pope or Emperor. But in fact the politicians of the Middle Ages depended largely upon the Old Testament, latinized, in the words *rex* and *regnum*. The function of the State was, however, distinguished from that of the Church; and there was the beginning of a coordination of institutions. Again, here the men of the Middle Ages seem to deserve more credit for political perception than it is usual to give them. But they did not go far enough. Trade guilds and universities were conceived to "depend" for existence upon either State or Church:

⁴³ *Pol.*, III (VIII), init. 1337a: τῷ νομοθέτῃ μάλιστα πραγματευτέον περὶ τὴν τῶν νέων παιδείαν. This does not mean: "There should be State education," but "The practical social philosopher should concern himself with education first."

⁴⁴ The philosophical schools, for example, the religious brotherhoods and the artistic societies.

⁴⁵ Livy, XXXIX, 18, cf. my *Political Ideals* (3d ed.), pp. 66 et seq.

and all medieval thinkers were confused by their attempt to reconcile what they knew of the *πόλις* and the Roman *civitas* with the *regnum* and *Imperium*.⁴⁶ Thus the first beginnings of coordination and of a development away from absolutism or inclusiveness were easily destroyed in the Renaissance.

The anarchic tendencies of private judgment in the Reformation led the saner reformers to exalt the power of the State. Both Luther and Zwingli tended to reaction in this matter, because of the danger of a dissolution of all organized society. The time for coordinating institutions had not come: one or the other had to suffer, and the Church became a department of State: not, however, without an effort in the other direction. Calvin, attempting to keep the two functions distinct, may have made the State into a church: but Roger Williams (and he is a type of others) goes so far as to say that "church and civil government are not inconsistent but *independent*."⁴⁷

The current, however, set strongly toward absolutism. In Bodin, in spite of his idea of "sovereignty," we find a recognition that other institutions than the State existed before the State.⁴⁸ The right conclusion is not drawn; for we are told that other communities now owe their existence to the State. Numa, says Bodin, established *collegia* in Rome, and the Romans suppressed the Bacchic society. So the dead hand covers the eyes of a great man. Grotius engagingly declares the State to be the "perfect" community, whatever that may mean.⁴⁹ Machiavelli justifies all means for the preserving of the "State," but never

⁴⁶ This confusion is well described in Gierke (*Pol. Theory*, etc., Eng. trans. p. 96) and may be seen operating in a great man in Aquinas's commentary on Aristotle's *Politics*.

⁴⁷ *The Bloody Tenet*, Ch. 83.

⁴⁸ "Le mot de Communauté est commun à la famille, au collège etc. *De la République*, Bk. 1, Ch. 8. Cf. my *Political Ideals*, p. 135.

⁴⁹ *De Jure*, etc., I, 1, 14, "Civitas est coetus perfectus."

dreams of advocating moral or immoral extremes for any other institution:⁵⁰ and in this again he is arguing from the devotion to the State in his purely imaginary Rome. Hobbes writes that "a Church is the same thing with a Civil Commonwealth";⁵¹ and against the maintainers of "spiritual" institutions, he says that both laity and clergy "depend on the Civil Sovereign." Other institutions than the Church are hardly mentioned.

The theorists of the French Revolution were all governed by the Renaissance and Enlightenment in the amount of the functions they attributed to the State. The destruction of the theocratic basis for power and its dynastic embodiment left the absolute and all-inclusive State still untouched. The State took over many of the illegitimate powers of the king. Even Rousseau, who cannot be said to have loved absolutism, says that man was wild and endangered, and, looking about for safety, found—the State!⁵² The State is defined as "une forme d'association . . . par laquelle chacun s'unissant à tous, n'obéisse qu'à lui-même et reste aussi libre qu'auparavant." So also the Revolutionary declaration of August 18, 1792, says, "L'Etat ne doit souffrir dans son sein aucune corporation." The result in modern times was the suppression of religious associations, which, whether justifiable or not, was based on an antiquated idea of State "inclusiveness."

To pass to later times, war once again weakened all social development, and Hegel in the *Philosophy of Right* makes the State the highest society. It is not clear whether he includes in it all institutional functions. Of other institutions only the family is adequately treated. In the *Phi-*

⁵⁰ *Lev.*, III, 10; cf. Part II, 29.

⁵¹ *Disc.*, III, 41: "Dove si delibera al tutto della salute della patria, non vi debbe cadere alcuna considerazione nè di giusto nè d'ingiusto." It will be noticed that the State for emotional appeal becomes "la patria": but many peoples have a "patria" who have not a State of their own.

⁵² *Contrat social*, I, 6.

losophy of Mind (par. 546) he says that "the state of war shows the omnipotence of the State": and he reduces the Church to "the Protestant State" (par. 549)! Wallace, his translator and interpreter, tells us (p. cciv, Clarendon Press edition) that this is "professorial socialism," and that the culmination of "the Spirit," whatever that is, is "the supremacy of the eternal State." But, I confess, "the Spirit" takes the whole matter completely out of my ken: so that I shall say no more of Hegel.

The Hegelians are amusing. Bluntschli devotes a chapter to the chief differences of the Modern State from the Ancient and Mediæval.⁵³ There is the barest reference to other institutions, and their international character is not recognized: he speaks as if the State were highest and best of all, and adds the ludicrous nonsense that the State is a masculine and the Church a feminine institution, presumably because of the German language! Bosanquet is absolutist in the Hegelian sense: and he goes so far as to say that in art, philosophy and religion social relations are not prominent!⁵⁴ These are apparently exercises of the free individual: but perhaps here also we have some of the mysterious workings of the Hegelian Spirit.

It is well known that the English tradition of the nineteenth century was against State absolutism; but it was mistaken from our present point of view, because it contrasted the State with the unorganized and uninstitutionalized individual. This was a vital mistake, not only in conceiving a plan of action but even in the perception of fact, for what is to be contrasted with the State is not the individual, but (1) other associations for other purposes, and (2) society as a whole.

The evil tradition of atomic individualism has affected even modern political thought on the limits of State power.

⁵³ Bk. I, Ch. VI.

⁵⁴ *Phil. Theory of the State*, in fine.

Hence Sidgwick, who corrected most of the mistakes of Mill and Spencer, speaks as if in the case of divided allegiance, even recognizing voluntary associations, the State must be the aggrieved party.⁵⁵ He has some insight, however. Churches, he says, supply needs "which it would be desirable for Government to supply, if it could do so effectively," which we may take to be a recognition of the departmentalizing of "politics" in modern times, for it is implied that the State cannot be a church and, one may suppose, neither can it be a trading company. But Sidgwick does not seem to recognize that men are, in fact, united by institutions for other than political purposes across the frontiers of State or nationality.

In Germany Jellinek subordinates the Church in his opposition to "Dualismus":⁵⁶ he recognizes the importance of international associations, but not with reference to a division of social functions. Eucken, however, has protested against the Hegelian State. "The spontaneity and the wealth of life suffer from the tendency to increase the power of the State. . . . The State is inclined to look upon science and art and chiefly religion and education, especially with regard to that which they achieve for the aims of the State. . . . The Germans especially have much to do in this matter and there is much at stake."⁵⁷ As certain of their own prophets. . . . we need say no more.

Enough has been said to show that the increasing complexity and diversity of institutions other than political have not been reflected in political theory: nor has any philosophical theory of the State allowed for the immense difference this must make even to purely political facts.

C. DELISLE BURNS.

LONDON, ENGLAND.

⁵⁵ *El. Pol.*, Ch. 28 (ed. 1897), p. 577.

⁵⁶ *Op. cit.*, Ch. 10, par. 5.

⁵⁷ *Life's Basis* (Eng. trans., p. 359).

NATURAL CHECKS ON HUMAN PROGRESS.

IN times past the poetic imagination has created fanciful pictures of a Golden Age when the world was young and when mankind was innocent and happy, pictures like that, for example, of the Garden of Eden before the "fall" and before the coming into the world of sin, work and death. Traditional theology has ascribed evil to man's waywardness and departure from the perfect conditions which God established in the beginning, in the dim dawn of human life. Modern evolutionary ways of thinking, however, have turned man's face to the future instead of to the past in the universal quest for a perfect world and a perfect social order. The age of innocence has come to be looked upon as a final goal to be achieved, not as the first condition of man. The picture that Thomas Hobbes gave us in the seventeenth century of the life of primitive man as "poor, nasty, brutish and short" was like a forecast of nineteenth-century Darwinian conclusions. To many it now seems easy to conceive of a genuine Golden Age that is to come as the final fruitage of the tree of human life, the roots of which are fixed deep in the soil of past struggle and suffering. Mankind has ascended from a brute ancestry; but, just as the rose, with its roots in the dark soil, is none the less beautiful and fragrant, so the human race of the future may acquire a happiness and perfection none the less complete for having sprung from a lowly origin.

Such, in brief, is the optimistic story told by many

readers of the evolutionary records. If, however, one desires to be guided by the facts and by the sober truth, one should examine with care the foundations of all evolutionary theories that are completely optimistic in regard to the possibilities of the future. The fact of present suffering and dissatisfaction is obvious. The fact of much injustice and of many social ills that might be remedied is obvious also. But the views of the would-be reformer who assumes the possibility of the final elimination of all social evils and the consequent attainment of a state of perfect human happiness, are as unscientific as the views of the poets who have beguiled man's fancy with stories of a Golden Age in the past. So far as ideals are guiding stars of human conduct, they are valuable, no matter how completely incapable of realization, or perhaps just because of being unrealizable. As Browning says, "A man's reach should exceed his grasp." But when poetic ideals are presented in the guise of prosaic facts, the intellect is in danger of stultification.

It is with the purpose of distinguishing between fact and fancy in sociological theory that I am attempting to point out certain natural checks on human progress. Two errors are at the basis of all social theories which postulate the possibility of the eventual elimination of all human ills. In the first place, in all such theories there is the failure to take sufficiently into account human nature itself, and the limitations imposed upon human development by the facts of heredity. Thus the first great check upon the perfectibility of human nature is, paradoxical as it may seem, human nature itself. In the second place, in all Utopian theories there is neglect of the inevitable limitations imposed by the physical environment in which human life finds itself placed. The sciences teach us that the world was not made for man. The universe is in debt to no one for a luxurious life, nor does it owe any one even a bare

living. Man's life has always been maintained, and must always be maintained, through unceasing struggle with a physical environment which is indifferent to human weal or woe, and from which the means of life must be wrested by persistent human effort. For these two reasons, therefore, namely, the limitations of human nature and of inanimate nature, the upward progress of mankind can not be indefinite.

Two views of human nature, contrasting in the extreme, have been held in the past. According to traditional Augustinian and Calvinistic theology, through Adam's sin, which has become fatally hereditary in the race, all of mankind has been corrupted. Theological views of original sin, infant damnation and the like, are but slightly familiar to the modern world, but they have been of immense importance in the history of theology. Another view of human nature was promulgated influentially by Rousseau in the eighteenth century. His book *Emile*, valuable in many respects and now regarded as the corner-stone of modern educational theory, proclaimed a view of human nature diametrically opposed to the Augustinian view. The very first sentence of the book makes the assertion, "Coming from the hand of the Author of all things, everything is good." Rousseau refers especially to child nature, which he regards as wholly good. Moreover, according to Rousseau, but for errors of individual development due to imperfections in our educational methods, adult human nature would remain as completely perfect as child nature. Rousseau was a sentimentalist, and his views concerning the natural perfection of man seem as fantastic to the modern scientific mind as do the old theological views of original sin. This romantic conception of human nature, however, has persisted in many quarters, and forms one of the basic errors in the reasoning of many social theorists.

Is human nature inherently good, as Rousseau claimed,

or wholly bad, as Augustine asserted? As in the case of all other extreme theories, so here, the truth lies midway between the extremes. Human nature is partly good and partly bad. Modern studies of the original nature of man have given us lists of inherited tendencies. The most important of these tendencies are the instincts, of which man possesses a greater number, according to William James, than do the animals below man. All of the instincts have been biologically useful at some time in the past. Man's ancestors were prehuman many times longer than they have been human, and modern man's human ancestors were savages many times longer than they have been civilized. The instincts are an inheritance from the jungle existence of countless generations, which struggled with tooth and claw, and then with war-club and battle-ax, for existence and for supremacy. In former times the instincts were all useful, under the conditions of jungle and of savage life; but their strong persistence as a fundamental part of human nature after civilized conditions have been established, creates numerous problems, since the instincts are not always useful now. Many of the vices and crimes of modern man are the result merely of the exercise of normal human instincts, though some of the virtues also of modern man are equally the result of instinct. Egoism, for example, is based on those instincts which have contributed directly to individual self-preservation; but altruism also is instinctive, being an outgrowth of the parental and the gregarious instincts, which have been instrumental to the preservation of the social group. Original human nature, therefore, cannot be called wholly good or wholly bad, but both in some degree; and the degree of goodness or badness is to be measured in terms of the ethical quality of the instincts when exercised under modern conditions.

From the fact of the non-inheritance of acquired characteristics, a fact established by Weismann and widely

accepted by biologists, there follow certain other facts of importance for education and for social progress. Civilization, by which we refer to a condition of culture characterized by a complex development of religious, social and political institutions, together with achievements in literature, art and science, is wholly a matter of acquired characteristics. Consequently, civilized ways are not inherited. Sometimes we speak of social heredity in explaining the transmission of cultural elements from one generation to the next. Social heredity, however, is not really heredity, but rather education in the broad sense of the term. Civilization is an artificial condition, maintained at the cost of unceasing effort. Each new generation is born with an inherited equipment of instincts and capacities little superior to the equipment of our savage and barbarous ancestors at the stage of evolution immediately preceding the dawn of civilization. If it were possible for one generation to be left entirely to itself, and if all influences from a civilized environment might be excluded, this segregated generation would relapse completely to a state of savagery. Romulus and Remus, the legendary founders of Rome, were said to have been suckled by a she-wolf, which had saved them from death through exposure on the bank of the river Tiber. The impossibility of any such occurrence as a matter of serious history is obvious merely from the fact that acquired characteristics are not inherited. Romulus and Remus were born of (somewhat) civilized ancestry; but, if they had actually been reared in the wilderness by wolves, they would have been lacking in all the essential qualities of civilized life, and consequently they would have been incapable of founding a city. Capacity is inherited, but the direction in which attainment is to occur depends upon the directing influence of the environment.

Original human nature, unmodified by civilizing influences, is thus seen to be necessarily far from perfect

when judged from a cultural view-point. By original human nature is meant human nature in its hereditary aspect, and most of the hereditary elements come from an immemorial, uncivilized past. Instincts evolved in the jungle and tendencies bred in savagery constitute the fundamental material with which the sociologist must deal. If acquired characteristics were hereditary, it would be possible for each generation to begin where the last left off, and to forge ahead rapidly. Many theories of rapid social progress assume unconsciously that this is possible. If the whole educative effort of each generation might be expended in projecting the next generation forward, then there would be no limit to the possibility of social advance. But a large part of the educative effort of each generation must be utilized in the never-ending process of bringing the new generation up from its original, primeval condition to the existing level of culture. Merely to maintain the present status of culture requires ceaseless effort, and relapse to the primitive is only too easy at any time, and too rapid whenever it occurs. Each new generation begins, not at the stage of culture reached by the preceding generation, but at practically the same point at which the preceding generation started. Such a thing as a modern infant does not exist. An infant is no more modern or civilized in the twentieth century A. D. than was an infant in the twentieth century B. C. Moreover, each new generation has to begin as infants, not as adults. Some forward progress is possible, however, since the recapitulatory part of education, the retracing of what past generations have achieved, can be shortened somewhat, so that, to a limited extent, education can be, and is, of a genuinely prospective sort. A study of history shows that genuine progress has occurred, along with a certain amount of retrogression in some respects. Greek and Roman civilization, for example, was higher in some respects than modern civilization; while in other

respects, especially in the development and application of the sciences, the present stands supreme in comparison with all the past.

Though social progress is possible, and though it may be almost limitless in some directions, still a real Golden Age in the future is impossible if for no other reason than that each new generation must begin anew and relearn through painful effort the civilized ways of the past before forging ahead to new achievements of its own. In addition to this necessity of a certain amount of recapitulatory education, there is inherent in human nature another and a more serious limitation upon progress. I refer to the persistence in human nature through the force of heredity of traits and tendencies which smack so strongly of jungle and of savage life that their adaptation to civilized conditions can never be made perfect. The first check on social progress due to causes inherent in human nature is thus the failure of civilization to maintain itself through hereditary transmission, while the second check is of just the opposite sort—the too strong persistence through heredity of uncivilized traits which hark back to the primitive and which cause maladjustments in any refined society in spite of the best efforts of education.

This second point may be made clear by reference to specific problems that arise in connection with the necessary redirection in modern society of some of the instincts. A leading contemporary educational psychologist, Professor Thorndike, has defined education as the prevention and the production of changes in original human nature. Some elements of the child's innate endowment are good, and change of them is to be prevented; but other innate tendencies are bad and need to be changed in order that the individual may be fitted for a moral life. Nearly all of the instincts may be turned in some degree to desirable moral uses, but many of them tend constantly to express them

selves in injurious and immoral ways. This is the case, for example, with pugnacity. Its utility in past ages, in its original form of individual and group fighting, is obvious. Its present-day expression in this primitive form is considered immoral, however, in the light of the highest ethical standards. This instinct may be utilized, nevertheless, through sublimation, by which process other objects than the instinctive ones are substituted for it to act upon. It furnishes enormous energy, making possible some of man's best achievements. The social worker, for example, may utilize a sublimated form of pugnacity in fighting evil conditions and in feeling righteous indignation toward wrong. The complete sublimation of this or of any other instinct, however, is impossible; and it seems likely that pugnacity will find unsublimated expression indefinitely in the form of actual warfare. Consequently, the greatest problem to be faced by any league of nations that may try to prevent all wars arises from fundamental imperfections in human nature. Fear, also, like pugnacity, is an important instinct. Its necessity for the survival of the race in earlier times is clear. Through it dangerous situations have been avoided. There have been times when, from the point of view of individual and group safety, discretion was the better part of valor. Fear is capable of being sublimated and made to possess moral value when vice, dishonor and the like, become the objects feared. In the training of children fear of punishment is utilized as an incentive, though less frequently now than formerly. But fear has dangers for mental health. For example, unreasonable fears often arise in childhood, and these may mar the whole future development of the individual. Fear is so deep-seated in the race that it can never be completely eradicated; and, so long as it persists, universal happiness will not be attained.

Other instincts also have their bad as well as their good sides. That curiosity is recognized as being sometimes

bad is shown in the warning that "curiosity once killed a cat." When sublimated in the form of intellectual curiosity and of religious wonder, this is a valuable instinct; but will such unsublimated expressions of it as, for example, the improper prying into other people's affairs ever be stamped out, and will the Golden Age be really golden until such expressions of curiosity cease? The instinct, however, which has always caused the greatest amount of trouble of any, and the proper moral regulation of which has been society's most difficult and unsuccessful task, is the sex instinct. This instinct is the source of life's greatest happiness, but also of life's greatest misery. Its vital importance for racial survival has led to its becoming highly developed in ages past—far too strongly developed when considered in relation to the conditions of civilization. In civilized society complete expression of the instinct is morally impossible. Under the influence of moral, religious and esthetic ideals much of its insistent energy can be sublimated into the very highest forms of expression, such as mystical worship and artistic creation and appreciation. For but few individuals, however, do art and religion furnish a sufficient safety-valve for the instinct, and for even these few the stern repression that is necessary as a part of the sublimation process leads often to neurotic disturbances. For the great masses of mankind the sex instinct is the source of much disease and crime. Never can the race survive the disappearance of this instinct, but never can the race be free from disharmonies so long as the instinct persists. Neither with it nor without it will a perfect social order ever be possible.

A common fallacy in the thinking of numerous theorists is that of ignoring the biological checks upon the development of human virtue and intelligence. The individual who has achieved intellectual emancipation sometimes tends thenceforth to judge society as a whole in terms properly

applicable only to a few, and to think that the evils of ignorance and of superstition may eventually be cast off by every one. Then, with reason at the helm of life, all will be well with mankind. Thus runs the argument. The facts seem to indicate, however, that reason is relatively sterile in the biological sense, and that it is incapable of propagating itself extensively enough to become universal. The great intellects of history, our Platos, our Kants and our Newtons, have been childless. The intellectual and highly educated classes have always tended to be somewhat infertile. The population is, as a general rule, being constantly recruited most plentifully from the less intelligent portions of society. Saintliness and wisdom are hard pressed in their efforts to maintain themselves biologically.

In several ways, therefore, it is seen that human nature itself limits the prospect of indefinite human progress. Progress is limited also by inanimate nature. When theorists lay the blame for human suffering wholly upon the shoulders of certain unjust classes of society, or upon defects in the educational system, or upon some other social imperfection, they are apt to assume erroneously that, if only justice among men prevailed, nothing would remain to mar the picture of perfect happiness. A proper biological perspective of human life corrects such an assumption. The most fundamental law of the animate world is one of prolific multiplication far beyond the capacity of the environment to supply food. This law applies to man no less than to the lower animals. Of course, through the proper application of science to nature, the physical needs of an enormous population can be supplied. I would not argue specifically, as Malthus did, that the needs of the increasing population for food are constantly exceeding the food supply; but I would point out that this is the universal tendency in the world of life below man, and I would apply the principle more broadly in the human sphere, not limit-

ing it merely to the question of food, since "man does not live by bread alone."

Is inanimate nature limitless in resources and capable of furnishing sometime a perfect home for a perfect society? Was the physical world made especially for man's benefit and enjoyment? Has mankind any inherent right to demand life and luxury from nature? From the biological view-point, the answer to all these questions is negative. Life seems like an intruder into the vast world of inanimate nature, which existed long before the appearance of life, and which will survive life's extinction. From the standpoint of the sciences, the physical universe is wholly indifferent to the vital needs of plants and animals. Living forms have simply thrust themselves into the cracks and crannies of nature, encroaching everywhere upon an alien world. Mankind is in no position of special privilege. Nature may yield an abundance to meet the needs of man, but only so far as man asserts himself in a ceaseless effort to get what he needs. It is a case of nature helping only those who help themselves. That human needs may all be completely satisfied some day from nature's storehouse is a proposition to be proved or disproved, but not to be assumed.

As Dr. Schiller says in his *Riddles of the Sphinx*: "To primitive man the world is a terrible affair, replete with incalculable horrors, whose burden was alleviated only by the limitations of his imagining. It is still so beset with dangers that science may legitimately wonder whence man draws the strength to sustain the unequal struggle with the cosmic forces" (3d ed., p. 465). The evidence from the sciences of geology and astronomy is opposed to the assumption that the physical environment will eventually be shaped wholly to human uses and made productive of satisfactions for all human needs. Not only is the indifference of inanimate nature to man's present desires

shown by catastrophes such, for example, as ruinous earthquakes and volcanoes, droughts and floods; but the prospect for the distant future is one of final disintegration and destruction rather than of indefinite improvement. In *The Foundations of Belief* Mr. Balfour has pictured the last state of our portion of the physical universe in the following words: "The energies of our system will decay, the glory of the sun will be dimmed, and the earth, tideless and inert, will no longer tolerate the race which has for a moment disturbed its solitude" (p. 31).

Although social progress can not continue without limit, it may, nevertheless, be great even beyond the power of the twentieth century to imagine. Human nature itself limits progress in the specific ways that have been pointed out; but, nevertheless, human nature will unquestionably be more effectively adjusted to the environment by the better educational methods of the future, and it will be improved fundamentally through the widespread application of eugenics. Inanimate nature, like human nature, sets limits to progress, nor will it every be wholly kind to man; but the future progress of the sciences will enable man more and more, within limits, to bring the physical world under human control.

Human nature is such, however, that it will never be completely satisfied with a purely positivistic goal of social progress. There will always be felt, on some occasions, at least, and among some persons, the need of a romantic religion. "How painful is the actual world—the painful kingdom of time and place," said Emerson; and then his world-weary soul sought refuge in the Over-Soul. Thus has it always been with men of imagination, sensitive to the transcendental yearnings of humanity, and thus will it always be.

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CRITICISMS AND DISCUSSIONS.

NIETZSCHE—TRAFFICS AND DISCOVERIES,¹

I.

Without doubt, the Bird of Freedom and the Star-Spangled Banner are venerable symbols. But, like the British Lion and "the flag that braved a thousand years the battle and the breeze," they may deck the triumph of campaign buncombe or propagandist wind-jamming and yet, in due time, escape these base uses unsullied. For, "bulldozia" happens to be a temporary aberration in the lives of average men, even if irresponsibility and conceit, ignorance abetting, are seldom far off. On the other hand, when propaganda plasters a thinker, advertising him an intrusive nuisance or worse, the stigma tends to produce permanent misunderstanding. Many recent proofs might be led for the case of Nietzsche; one may suffice. "It is doubtless true that the Bismarckian doctrine of 'blood and iron,' etc. *ad nauseam* are largely due to Nietzsche, Treitschke, and Heine and others of recent date who have continuously preached the doctrine of German superiority." Small wonder that the perpetrator of this historico-philosophical flub-dub should have been described—by a friendly hand—as a "county chemist, who left the bedside of his patients long enough to call attention to the fact that Nietzsche taught pernicious doctrines." Beer-analysis and the bedside are prone to interfere sadly with comparative study of a somnambulist pamphleteer (whose pamphlet runs to several fat volumes from which, as Nietzsche said, intelligence had disappeared); a contemner of "half-and-half standpoints" (whose canon is written in twenty-three volumes); and a quaint, vivacious, scathing spirit (also a maker of many volumes); not to mention the anonymous

¹ *Nietzsche the Thinker: a Study.* By William Mackintire Salter. New York, Henry Holt and Company. Pp. x+539. Price, \$4.00 net.

"others of recent date" (whose output may well fill a library). In short, "patriotic" gregariousness and half-cock garrulity do not favor the patient toil necessary to appreciation of the reflective and solitary.

Accordingly, seeing that we have had a surfeit of the "red-blooded American" who views the "Great Republic" as if it were merely a series of cinematic thrills and conventionalizes Nietzsche into a barker for poisonous patent medicines, it is a welcome relief to light upon Mr. Salter's volume. Without delay or circumlocution, one may say at once that this is *the* English book on Nietzsche. Indeed, such are the virtues of perspective that I doubt whether Mr. Salter is excelled by Prof. Raoul Richter, whose magistral *Friedrich Nietzsche, sein Leben und sein Werk* is the single study fit to dispute pride of place with the American monograph. Steady application "in lonely ways and studies" giving perfect familiarity with the primary sources, and with the greater part of the extensive secondary material, has wrought an authoritative pronouncement—by a dyed-in-the-wool American Protestant, of all people. Moreover, the book does honor to our scholarship, we have too few of its kind. Speaking of other works on the subject, Mr. Salter complains, with ample justification, "What, however, does not seem to abound is knowledge of the object slain, or to be slain, i. e., some elementary and measurably clear idea of who, or rather what, Nietzsche was, particularly in his underlying point of view" (p. vi). And, referring to his own effort, he modestly suggests, "As for criticism—unquestionably the thing of final moment in relation to every thinker—if I can only help to make it in this case a little more intelligent in the future, I shall for the present be satisfied" (p. vii). He may rest assured that he has seen of the fruit of his labors, that his aim has "better bettered expectation."

More than likely, it is prudent to note that "the book was in substance written before the present European War, and without a thought of such a monstrous possibility" (p. v). An excellent omen. For, during the period of Mr. Salter's travail with Nietzsche, the attitude of protest, so productive of false stress, was not thrust upon him rudely. Hence, exaggeration, moral strain and the temptation to traffic in catch-phrases, are absent. Nevertheless, Nietzsche is Mr. Salter's hero, and, unavoidably no doubt, a certain emphasis ensues—an emphasis of appreciation, to be sure, rather than of headlong discipleship. "I do not wish to prophesy, but I have a

suspicion that sometime—perhaps at no very distant date—writers on serious themes will be more or less classified according as they know him or not; that we shall be speaking of a pre-Nietzschean and a post-Nietzschean period in philosophical . . . speculation” (p. 4). I cannot but diverge here and, in order to make our differences plain, am bound to outline my own experience. It may possess impersonal interest. For, angle of approach may very well determine one’s general estimate of any author, to say nothing of a “free spirit” on the Nietzsche scale.

Reverting to several ventures in Germany between 1876 (the earliest) and 1885 (the latest), I cannot recall that Nietzsche ever presented himself or was presented as a force important enough to demand instant reckoning. Kant and Hegel were the ruling orbs, even if interference rays from Schopenhauer had begun to attract attention, thanks to the popular vogue of Hartmann’s *Philosophy of the Unconscious*. Trendelenburg cut no small figure among students; the neo-Kantian movement had gathered headway; indeed, oblivion was already overtaking the Platonic element in F. A. Lange’s *History of Materialism*; and the double-refraction process peculiar to Lotze’s irenical spirit found favor with so many that Berlin cast envious eyes at Göttingen. But all these, even Schopenhauer, harked back to the two great luminaries, and—criticism attaches the critic no less than the disciple to some mighty master, as we are apt to forget. Accordingly, *Facharbeit*, ever more *Facharbeit*, particularly in history of philosophy, dominated us. Was not this our real quest in any case? I at least left Germany with a head full of the sort of thing to be found in Zeller, J. E. Erdmann, Friedrich Harms² and, significantly enough, A. E. Biedermann.³ A tincture of Schopenhauer (on whom I labored during the eighties) there may have been, but Nietzsche lay entirely below the horizon. Nor can I recall that I ever heard of him effectively during fifteen months spent at Paris and Rome in 1881-82.

He was brought to my attention first in 1887, by Ernst Elster (afterward professor at Leipsic), then my colleague at Glasgow. But in these days Elster was immersed in Germanic philology, and did not insist upon the new star. Nor was this surprising for other reasons. Nietzsche himself tells us, in 1887, “that in fifteen years the dear Germans have not managed to write so much as one *moderately* serious and thoroughgoing review of any one of my twelve

² *Die Philosophie seit Kant*, 1876.

³ *Christliche Dogmatik*, 1869; 2d ed. 1881-84.

volumes." It thus fell out that he was not thrown at me till 1890 when, by a lucky accident, Alexander Tille, of translation fame five years later, arrived upon the Glasgow scene straight from Leipsic. Tille—so report ran—represented the very last word in modes and moods fashionable with youngest Germany. He was understood to be the Alexander Lauenstein of the *Magazin für Literatur* of the eighties, the Kurt Grottewitz of *Neues Leben*, and reputed to have had some conspicuous hand in a novel, *Vor zu Laufgang*, scandalous enough to have earned suppression even in Germany. I never could get a sight of this book; but, in any case, Tille appears to have kicked over the traces with shocking effect upon the Saxon *Philister*. He turned out to be a furious Nietzschean, his *Von Darwin bis Nietzsche* rumbling in his head already. His curiously "foreign" gift of sentimental exaggeration did not reassure a Scots scholar, although his vast knowledge of the Goethe literature proved impressive. Nor did the active historians of philosophy lend much color to his ecstasies, as I used to urge in rebuttal. To be sure, Erdmann's third edition (1878) fell early enough to render total silence explicable. But Falckenberg (1885) dismissed Nietzsche with bare reference, as a disciple of Schopenhauer; Windelband (1891) inclined to number him with the poets; while Weber (1892) treated him once more as a mere foot-note to the Frankfort pessimist. Learned Americans who, as we heard, were absorbing things German with avidity, gave no greater encouragement. The painstaking B. C. Burt (1892) and the brilliant Royce (1892) preserved the silence of ignorance, discretion or, mayhap, contempt. Thus Tille, who harped on the "blond beast," gave a luckless impression of subjective *Schwärmerei*, and I was inclined to smile, I fear. At last, in 1894, I heard something which startled me. Early in this year, I had an intimate conversation with Otto Pfeiderer, then Gifford lecturer in the University of Edinburgh. Although he was set upon denunciation of Ritschlian and neo-Kantian misdeeds, I contrived to introduce Tille's tall talk, and sought enlightenment. Pfeiderer had never heard of Tille, but he was perfectly open, even decisive, about "the Nietzsche cult," as he termed it. "Yes," he summed up gravely, "Nietzsche has *hypnotized* Young Germany."

Retarded through seven years by acquisitive preoccupation, vague report and hectic pæan, I now began to suspect that we might be confronted by a person who "hurts, makes afraid and wastes," assuredly with a type of experience demanding further study. Five

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years later, at the University of Michigan, I felt justified in taking Nietzsche as the subject for a proseminar, encouraged by the presence of unusual students, several of whom are now shining lights in our academic firmament.⁴ The venture proved unsuccessful, all things considered. As Mr. Salter himself has been good enough to suggest to me, Nietzsche is too difficult, makes too many demands in the way of background, even with exceptional students. I did not repeat the course. But I had arrived at a definite conclusion, and have found no reason to alter my opinion. Nietzsche must be rated the most symptomatic spiritual phenomenon cast up by Europe in the last quarter of the nineteenth century. Yet, he is an index rather than a synthesis, occasion for philosophy rather than philosophy. I thought, and still think, of him as a telltale like Samuel Butler, whose *Life and Habit*, *Evolution Old and New* and *Luck and Cunning* I had read ere I came to know the Nietzschean reaction to "the struggle for existence." Credit me with no perspicacity on this score; Butler had been introduced to me by my Darwinian kinsman, the late George John Romanes. Similarly, Nietzsche seems to me a manifestation of a period unfavorable to systematic philosophy. I think of him much as I think of Empedocles, Diogenes of Sinope and Marcus Aurelius; of Montaigne, Pascal, above all, Voltaire. At the same time I strongly suspect that, although outwith the apostolic succession of major thinkers, he owed most to Plato.

The moral is plain enough. Ere I knew Nietzsche my philosophical standpoint had been reached. He might sing a new song to the Lord, as is the manner of genius, but I found no evangel. Thus the phrase, "a pre-Nietzschean and a post-Nietzschean period in philosophical speculation," leaves me cold.

Now, although Mr. Salter nowhere reveals his angle of approach, it is patently not mine. More than likely, when he encountered Nietzsche, perhaps by way of Schopenhauer, he was still eager "to find the thought that shall stand over mankind as its star" (p. 472). I was not. Accordingly, any differences that separate us are traceable, not to an attempt on my part to find fault with work so competent, but to our contrasted drifts. Mayhap, it comes to this. Mr. Salter, eager for something he can unconditionally obey, the survival from his Puritan ancestors, tends to emphasize the

⁴I have heard it said that these were the first university lectures on Nietzsche. Needless to recount, this is a blunder. So far as I know, the first lectures on Nietzsche were given by Georg Brandes, at the University of Copenhagen, in 1888.

Nietzschean intellect; the coercive must have warrant from thought. I, bred in what some (a little thoughtlessly) call "intellectualism," cannot see it this way. For me, paradoxically enough, Nietzsche imports much more than "thinking." But, let divergence play ever so large a part, one must insist upon the manifold service rendered by Mr. Salter. He has rescued Nietzsche from vulgarization by showing the sole way to counteract the irresponsible species of chatter that issues too often in mischievous absurdity.

Nietzsche's oracular style, his conceit to compress a volume into a sentence, his aphoristic profusion and his positive affectation of the "startling" (which he himself admits), have much to answer for. Nor has he been helped by the silly assertions and, no less, the stupid attacks upon great thinkers which some of his self-important disciples appear to deem incumbent upon them. Those who use English often contrive to be more ridiculous than their continental brethren, thanks to that vast ignorance of the history of philosophy characteristic of, or affected by, the younger generation, who foist propaganda upon us under the curious delusion that it betokens deep thought or remarkable originality. Acidulated perversity of this sort is totally absent from Mr. Salter's book. Care and moderation prevail; nay, the very gravity is too grave, perhaps, for a humorist like Nietzsche. Yet, compensations abound. In the first place, it is insisted that Nietzsche must be read as a whole, if not necessarily in historical order then certainly with particular reference to the cultural forces playing upon him at a given time. Again, as a natural consequence, current misapprehensions are dissipated, not so much by specific criticism as by a unitary exposition whereby Mr. Salter proves that, despite puzzling changes of stress, a few fundamental ideas control the total outlook.

All this admitted, and much else (for it is easy to wax enthusiastic over Mr. Salter's performance), the question still remains. Why place Nietzsche upon a *philosophical* pedestal? I can no more than guess! It seems tolerably plain that, as a student, Mr. Salter struck the doldrums of philosophical teaching in this country, when maiden uncles prelected in delicious unconsciousness of what had really been afoot since the *Critique of Pure Reason*, and that, after many days, he found in Nietzsche the one man capable of "putting in a downright lick between the eyes of humbug." Subjected to the precious conventions of the American denominational college as they bloomed in the latest sixties, he may have been permitted to

light upon Cocker's *Christianity and Greek Philosophy, or the Relation Between Spontaneous and Reflective Thought in Greece and the Positive Teaching of Christ and His Apostles* (1870), a work well calculated to bemuse him with a good deal of amazement, although rather by contrast with the startling jubilations of a contemporary book, *The Birth of Tragedy*—for Cocker sought divine approval rather than human enlightenment! Passing thence to the "divinity schools" of the seventies, he may have tackled the *Critique* in a general way and, possibly, Wallace's *The Logic of Hege* (1874) which, belike, kept the "secret" tolerably well, even if not so inviolate as it had been under the spell of Stirling's loquacious taciturnity. But, secret or not, it was necessary to say something about it, in order to offset the enormities of the abominable F. C. Baur. Under the assault of the Tübingen School, discretion would have been a vice.

Accordingly, it may be affirmed that Mr. Salter did not tread that veritable mill of Kant and Hegel—with Plato and Aristotle thrown in for good measure—the predestined "conditioning" with a majority of professional philosophers who were and still are his contemporaries. Notwithstanding, it would be an impertinence to suggest that he missed a background. He voyaged his own Odyssey of the spirit in his own way. I take it that he felt the powerful inhibitions peculiar to American Protestantism half a century ago: that his soul travailed greatly, forsaking at length the dogmatic implications, while retaining the sharp, almost painful, ethical interest. Indeed, *mutatis mutandis*, his experience in relation to his native environment may very well have been akin to that of Nietzsche himself. And, seeing that philosophies always portend an emotional element, that, by consequence, their moral implications bulk much larger than is sometimes admitted, Mr. Salter built his temple anew in his own fashion, stimulated latterly by the mastering issues latent in Schopenhauer, full-throated in Nietzsche. On no other hypothesis can I understand his complete and refreshing detachment from (for example) everything underlying the principal contribution to ethical theory in the English-speaking work of his own generation, Green's *Prolegomena to Ethics*. Traces of the influence of Caird, Bradley, Bosanquet and Royce are equally conspicuous by total absence. This is what I imply by "the virtues of perspective" mentioned above. Nietzsche did not "shock" Mr. Salter to such an extent that he turned away breathless. No inwrought philosophical

outlook had to be foregone, no system of coercive theological ethics had to be shattered. It never occurred to him, as it occurred to not a few reputable persons, who took a peep and then fled, that Nietzsche must needs be a species of privileged lunatic. Hence, as I see them, the great strength, and the main weakness of his book, when set in a scheme of values that left Mr. Salter untouched.

In a word, the grand manner of Puritanism had been overset, thanks to the picayune deeds now charged upon Providence. The Platonic element in the theological *Weltanschauung* suffered a parallel sea-change such that metaphysics came to look like a "higher kind of swindle," as Nietzsche said. Small blame to him that, caught in the backwater of the seventies, Mr. Salter hardly realizes through what an arid land, forbidding and trackless, a thinker must win to *intellectual* reality worth while. "How charming the perfection and pulchritude of the leaves, the flowers, the fruits. . . . Oh! the glorious goodness of our Deity in all these things!" After portentous labor, the long-drawn abstractions of the "divinity school" brought forth this mouse. Therefore, it became incumbent to eschew the *Allgemeinheit* of metaphysics, to revert to "the very dirt of private life." Naturally, Mr. Salter's conscience remained of the tenderest. So there is no cosmology, actuality is not the deepest issue of life; but ethical culture in some shape, surrounding us with a great cloud of controls, poses a new world, where East is West and West East—"beyond good and evil." As I am bound to see it, this attitude affords play for magnificent idiosyncrasy; the drawback is, it misses the scale of man's universe. In so alleging, I simply say that some ages set their dreamers too heavy a task. This was Nietzsche's fate—and opportunity. Mr. Salter is an admirable guide precisely on account of his consentaneity. Fated, he does not see clearly that "the worth of life *should* not be made to rest on uncriticized metaphysical assumptions." Accepting a dys-teleological universe, where no omnipotence abashes mere men, he concludes, logically enough, that each has his practical contribution to make. "The completely ordered world remaining forever an ideal," every one can bear a hand in the resultant struggles, especially in the competition of ethical values bound to ensue. The real separateness of selves assumed, not *vivere est cogitare*, but *vive ut vivas*, stamps the human mission.

Further, if we agree that the world or, at all events, the significant world began to roll about the time of Nietzsche's death—

somewhat complacent in its stodgy gospel of output, yet already showing signs of the onset of the nostalgia that spells rebellion—there is a sense in which Mr. Salter's contention holds. For, taken on this scale, "a pre-Nietzschean and a post Nietzschean period in philosophical speculation" invite backward-looking prophecy: only to tell that Nietzsche may veritably prove the last representative of the "secret infinity" so characteristic of the essential spirit of romanticism—the ultimate romantic. *Ne plus ultra*. As for me, I have never been able to see him otherwise. We cannot understand the continuous thunderstorm reverberating in his mind unless we have due regard to the oppugnant forces that had focus there, rendering him at once so suggestive and so puzzling, so remarkable and, no less, chuck-full of impossible dogma. His phases are no accident. Take them as basis for charges of inconsistency, instability or even insanity, and you rule yourself out of court. Far rather, he was a very scapegoat, bearing the sins of the people to Azazel in the desert on the Day of Atonement.

Bred graciously in a theological family, inoculated with all the proprieties, he passed to the severe discipline of Schulpforta, where, although the mind fed soundly if not sumptuously, the soul found barmecide fare. The university followed, then in the noon of a specialism that presaged no setting. Conventional "beer-fights," accepted for a moment as proofs of assumption of the *toga virilis*, soon palled; and, later, despite magnificent philological equipment, spirituality felt itself starved. Thus defrauded, Nietzsche (who was without training in technical philosophy) took the Frankfort curmudgeon for an apostolic figure, scarcely suspecting his place and significance in the Kantian line. Rightly enough too, perhaps; for Schopenhauer, though no profound metaphysician, revealed depths and to spare in the recesses of human feeling. Nay, more, Schopenhauer drunk, not Schopenhauer sober, raised the call of deep unto deep in Nietzsche's being. The Wagner episode, ecstatic while it held, was to be a sharp two-edged sword, cutting even to the bone and marrow. The pilgrim of eternity, bereft of his "beautiful moment," came to hate guide and quest alike, not wisely but too well. Disgust and self-criticism ensued, fed partly by the horrors of war, of which Nietzsche saw more than his share; while the physical mischance that befell him appears to have induced something like hypochondria, with consequent addition to harmful nostrums. Then for a little he ploughed with Gallic cynicism, reverting

to the hardness of the eighteenth century, yet, being in the nineteenth, pondered *Darwinismus*, an issue full of intrigue at that time. But, making loneliness its familiar, the romantic soul reasserted itself and, becoming once again the pilgrim of the infinite, now on its own account and not as any man's disciple, presented the great spectacle which drew the eyes of an epoch. Finally, on or about January 4, 1889, writing from Turin, Nietzsche perpetrated the extraordinary communication to Georg Brandes, signed "The Crucified," and straightway fell upon that most tragical of deaths, death at the top. It were evidence of sanity to take farewell of him here!

II.

Pursue culture, from Tieck to Francis Thompson, whither-soever you please; insist that the main highway is hideous with the dead or moribund conventions of "Victorianism"; claim that you detect nothing save "vast increase of natural knowledge," or crude commercial exploitation, following hard upon invention; allege that the dissolution of ancient theological controls, held normative for a millennium, is the significant affair; flout the obtuseness of the *bourgeoisie*, or flaunt the glories of nationalistic statesmanship; see rose-colored with the optimists, affirming that no age was ever like unto yours, or suffer a billious pessimism that tracks pretentious materialism on every side; be "reactionary" or anarchist; talk about "the century of hope," or bemoan the century of skepticism; in short, feel deliciously free to select any aspect for the whole truth, taking a joyous plunge regardless of depths as is the habit of many now! But recall, be your hazardous choice what it may, you will strike the trail of romanticism. Blame or praise, damn or worship, you cannot get away from it. Spiritually, from Blake to the pettiest aberrations of the "naughty nineties," from Herder to end-of-the-century neo-Fichteans, from Chateaubriand to Péguy; geographically, from Alloway Kirk to some unknown prison-house on Siberian steppes, from the English to the Italian lakes, from Jena to Concord, it haunts the pregnant phases of the moon, posing problems that admit neither solution nor escape. As has been suggested, it is more than possible that Nietzsche was the last victim of its metaphysical anguish. In any case, he was the only subject of *all* its paradoxes—generous yet cynical, audacious yet pessimistic, insolent yet humble, jeering at "respectability" yet vibrant with aristocracy, appreciative of the amenities yet implacable to the indus-

trialism on which they had come to depend, eternally young yet sick to death of the restlessness bred by pert sophistication. Insatiable therefore for "something"—whether bitter or sweet did not matter much—some "blue flower" for choice, of course, as the old lure of the Alps suffices to hint. A total stranger to the serenity of the grace of God, yet a brave knight of the Grail, eager to undergo anything in the search for some grace that passeth understanding. For him as for Tieck, "Die Scheidewand zwischen Fabel und Wahrheit, zwischen Vergangenheit und Gegenwart ist eingefallen: Glauben, Phantasie und Poesie schliessen die innerste Welt auf." How secondary the role played by the sobriety of philosophy when one views the incandescent phenomenon in this way.

From Rousseau's *La nouvelle Héloïse* and Herder's *Fragmente*, through *René* and *Manfred* and "Junge Deutschland," to Newman's *Apologia*, Wagner's *Tristan und Isolde* and Swinburne's *The Hymn of Man*, how variety mocks unity for a round century, yet what community there is—in "enormous moods," and in the inevitable ache for "romantic escape." Possibly, as Mr. Salter hints, Nietzsche imports more than his predecessors, Rousseau not excepted. But, if so, we must seek the clue in the persistent integration of the community with the variety. The entire gamut of stresses is run by him; the "enormous moods" attain a veritable enormity of insurgence, destructive to the individual, full of intimation to the observer. A demoniac person confronts us—heir of all the romantic preferences as of all the romantic objects of aversion; but, wrestling with a realistic age, the victim of a twofold originality, both ends out of sight, never out of mind. Further, the romantic urge gave him no peace, a brief breathing space aside when he flirted with the eighteenth century in its Voltairean incarnation. Hence the clamor of his scorn deceived him into thinking that he had neither art nor part with his countrymen. On the contrary, despite the conceit of Polish ancestry, his was the German *ictus*. He cannot be separated from it any more than Carlyle from his inverted Calvinism, Ruskin from his altruistic loyalties of the Scots Jacobite. And necessarily. For, as Mr. Chesterton has it (with customary gay wisdom), in a rhyme now hard to lay hands on,

"The people of Spain think Cervantes
Is worth any number of Dantes,
An opinion resented most bitterly
By all the people of Italy."

No dupe of prevalent and greatly waxing nationalism, Nietzsche could not elude its clandestine blandishments. Unusual to the last degree the relations may have been; they were there. Accordingly, the best introduction to him is not to be found in philosophy or science—movements tending toward internationalism—but precisely in such a work as Heyse's *Kinder der Welt* (1873).⁵ It is not that Nietzsche passed, like Swinburne, from mystic delights of Catholicism to violent transports of Tory Republicanism, wholly unaware that both imply similar presuppositions; not that, like Carlyle and Ruskin, he was beset by contemporaries who, nevertheless, embraced identical principles, nor even that, like Swinburne once more, he could abjure a kindred spirit without seeing the humor of the situation. But he did derive from the immediate cultural outlook. For example, he accepted as matters of ancient history many things, not merely debated, but burked in England. The *sancta simplicitas* of intellect attributed to Theobald Pontifex (a fellow of his College, recollect), was nowise overdrawn.⁶ It is plainly inconceivable of a "reformer" who, at the outset of his career, had already disposed of that scandal-mongering unbeliever, D. F. Strauss, for a *Bildungsphilister*.

In the same way, neither the *dii majores* of philosophy—Spinoza, Hume, Kant—nor the *dii minores*—Schopenhauer, Hartmann, Dühring—haunt Nietzsche's pages; let alone authority, he even speaks of "spiritual rat-catchers." On the other hand, we constantly recognize the accent, nay the phraseology of Tieck, Fr. Schlegel, Schleiermacher, Arndt, Kleist, Immermann and, very significantly, the mood of the Feuerbach-Wagner episode ("das Junge Deutschland"), now almost forgotten in our approved texts. "I am the fate which prevents the world from crumbling to pieces. . . . We are to experience a great revolution which will compass at one stroke what reason must for ever fail to accomplish" (Tieck). "Industry and utility are the angels of death who, with flaming sword, prevent man from his return to paradise" (Fr. Schlegel). "To become even more what I am is my only aim; every act of my life is a special phase of this one aim. . . . I shun nothing; all is the same to

⁵ After so much water has run beneath the bridges, it is interesting to recall that, making every allowance for the provocation of Heyse's *de haute en bas* attitude toward French *esprit*, so able a man as A. Réville fails to catch the implications of this novel. His extensive review is curiously left-handed. Cf. "Un roman philosophique en Allemagne," *Revue des Deux Mondes*, Vol. 107, pp. 316-48.

⁶ Samuel Butler, *The Way of All Flesh*, Chap. XII.

me" (Schleiermacher). "Our scholars are ambitious busybodies heaping up endless material, unable to use it...and our whole age is impotent" (Arndt). "What I am going to tell you may perhaps cost you your life: but I must, I must do it" (Kleist). "With stormlike rapidity the present age is moving on toward dry mechanicalism" (Immermann). "We fight, not for human rights, but for the divine right of man" (Heine). "Out of his own innermost nature he pronounced to himself...the Delphian oracle: he, God and priest in one, divine man, himself in the whole, the whole in him" (Wagner, in his Feuerbach period). The doublets in Nietzsche are close enough to be called weird; the Kleist apostrophe, for instance, recurs in so many words, and as an actual incident too!

Nevertheless, the *belle âme* and the *schöne Seele* of romantic achievement have given place to the *freie Geist* of *die Wiederkunft des Gleichen*. Another phase of cosmopolitanism has ousted that of Goethe, who was a "good European" as of the Europe before the French Revolution. The Titanism of revolt returns, tremendous now. Hence, to adduce a few differences at random, we do not ask with Werther, What do you mean by "it is good" or "it is bad." We have been swept "beyond good and bad." We see, like Obermann, that our comrades are sunk in hypocrisy, prejudice, superstition and convention. But we know why now and, scruples being put to flight, have no need to shrink into our several shells. Again, we are made acutely aware of the superiority of our powers to our conditions, but the incongruity, so far from rendering us wretched with Benjamin Constant, proffers us our real opportunity. One is no longer so feeble, so devoid of virility, as to quail before society after the example of Adolphe. Thus, freer than ever, Nietzsche can revert lightly to the minor Titanism of *René*. "All my life long I have had a wide-spread and yet insignificantly small world before my eyes, and at my side a yawning abyss." But the greater Titan scorns to hesitate here. He abolishes the small world, abyss and all, because he fathoms the future and forecasts the completion promised by it. Once more, with Fr. Schlegel and Novalis the call was for "a mythology which can be to us what the mythology of the Greeks and Romans was to them." Why, this very mythology has issued from Nietzsche's brain, ready for every business. In a word, he himself justifies his own greatness. He has surpassed romantic self-identification with nature, the eighteenth-century phase, and resignation before the force of things as they are, the nineteenth-

century phase. The human mission as revealed in himself suffices him. Titanism has come full circle when it dismisses the dilemma of "all or nothing" by seizing upon "all" confident that, even under finite forms, a final end can be compassed. Nor Napoleonic France nor Imperial Germany contrive to "blot out the national colors of neighboring countries, in the complacent persuasion that they themselves have a monopoly of civilization." For, Nietzsche has conquered by tearing the secret from "secret infinitude," thanks to his improvement upon the weapon forged by evolution.

If the prospect did not lead so far afield, it would be interesting to trace his affinities, quite marked, with the Catholic or, as some futile folk call it, "reactionary" element in romanticism. For, the "unalienable rights" of revolutionary *risorgimento* were transmuted by the idea of development into the doctrine that an individual can be little more than a vehicle of the collective wisdom of the race, particularly *his* race. In any case, who is he that he should dare set up his petty private opinion against the norms of all good men, proven by trial over generations? Possibly, Nietzsche felt the force of this appeal with crystal-clear intuition. His peculiar cast of mind enraged him against "the greatest folly of the greatest number," his periphrasis for history. But there is another factor, also far removed from the drab sobrieties of technical philosophy, which ought to be emphasized, the more that so little attention has been bestowed upon it in Anglo-American circles. I mean the influence of the Renaissance. Mr. Salter deals with it incidentally.

Enormous difference admitted, Nietzsche is, like Rabelais, a great *baroque*. Homeless in his home world, he proved a poor citizen, as Niebuhr says of Plato. Accordingly, with more than a reminiscence of the greatest Greek, he bethought him of the "universal man," especially of the "unique man," the characteristic ideal of humanism—the individual who is strong enough to exhibit complete contempt for customary values and yet to survive whole. Here lies the reason for his immeasurable denunciation of Christianity. Seen by his essentially unhistorical mind, "Christianity" had destroyed the society productive of this type. He did not realize that the culprit was the Counter-Reformation. Hence, too, his bitterness toward feudalized scholarship. An elective affinity of Pico della Mirandola, he would "live forever, not in the schools of the word-catchers, but in the circle of the wise." By the same sign, the Germans are "barbarians," synonyms for "all that is filthy." Over

against their esteems Nietzsche sets Renaissance *nobilità*—"the capacity for moral and intellectual eminence." He would be the Apollo in the "Parnassus" of Raphael; nay, something more, the first man! Did not God speak to Adam, saying: "Medium te mundi possui ut circumspiceres inde commodius quidquid est in mundo. Nec te caelestem neque terrenum, neque mortalem neque immortalem fecimus, ut tui ipsius quasi arbitrarius honorariusque plastes et fictor in quam malueris tute formam effingas. Poteris in inferiora quae sunt bruta degenerare, poteris in superiora quae sunt divina ex tui animi sententia regenerari."⁷ The field was free, all things were possible, and Adam was born again—in the person of Zarathustra! Becoming a complete being, Nietzsche in his completeness rediscovered, and read with new inwardness the apothegm of *Stupor Mundi* (Frederick II), "Three have deceived the world, to wit, Moses, Christ and Mohammed." It is all inconceivably subjective after the manner of romanticism, inconceivably secular after the manner of the Renaissance, both seen in the light of a century when discovery of the natural order, absorbing man's best brain, had sapped philosophy. Egoism there is, colossal egoism, if you choose to take it that way; but history does not repeat itself, and the cynicism is merely instrumental to the evocation of a devastating conscience. An individual has gained the completest of triumphs, by serving himself universal.⁸ Inheriting the mail-shirt of Werner von Urslingen, fighting under its motto, "The enemy of God, of pity and of mercy," Nietzsche has "better bettered" the *condottiere* by exercising godlessness, pitilessness and mercilessness toward himself most of all. Finally, this master-stroke of kindly (or was it unkindly?) fate befell him through no fault or merit of his own, but as the inevitable manifestation of cosmic necessity. So he thought. No, Nietzsche's philosophizing is germane, not to philosophical *Wissenschaft*, but to the dynamism of a prophetic mystic. In a word, he is significant for philosophy because he compels it to comprehend him.

Ibsen may be the "modern Diderot," Tolstoy the "modern Rousseau"; by comparison Nietzsche is himself, yet of the straight romantic breed. Listen to Beyle's conversation with Byron and, substituting severest self-discipline for a sentimentalism that hurtles toward mawkishness the further it is flung, glimpse the real truth.

⁷ Pico's "Oratio de Hominis Dignitate," in his *Commentationes*.

⁸ Several seductive problems cluster here. For example, what was Nietzsche's precise relation, if any, to Gobineau?

"But Milord is a romanticist," suggested Beyle. "No: I am myself," Byron replied. Whereupon Beyle, prefiguring our latest "intellectual," rejoined, "You are mine, for you obey the first rule of romanticism." Training with his kind and, more than likely, bigger than others, Nietzsche haunts the frontiers of everything—philosophy, psychology, religion, sociology, politics and so on. No contemptible poet, the coruscations of his volcanic soul crystallize in a prose style which extends the range of the German tongue indefinitely, so much so, that the man is the style. Thanks to the groundlings, we have forgotten that Carlyle was the greatest dramatist of the nineteenth century—shades of *A Doll's House*, spooks of *Plays, Pleasant and Unpleasant!* If we cannot place Nietzsche on such lonely eminence, he was at least one of its greatest artists. And this may well serve to remind us yet again of his Platonic affiliations. Let philosophy stand down, duly abashed. Lessing and Rousseau, Herder and Goethe, Carlyle and Ruskin, and, if you seek paradox, even Newman, are his congeners. It were fatuous to attempt comparisons, because the end is not yet. Besides, he has one brother of the spirit, the most significant phenomenon cast up thus far by the United States—Emerson. I strongly suspect that, were one to take America in its direst slough of despond, about 1814, thence to the forces culminating in the Civil War; and the brassy new Empire, of frightful mien in its own eyes, but progressively moth-eaten with unanimist subservience, a most fruitful parallel could be drawn.⁹ At least, the implicit "philosophy" might become plain. And I imagine we should not be surprised to find it the subtle, persistent Platonism which has unfailingly inspired men who felt themselves free enough to take elbow-room. The macrocosm, a chaos otherwise, becomes a cosmos—in the soul of the microcosm. Here is the center of immensity. "The one thing in the world, of value, is the active soul." So Emerson. "If there were Gods, how could I endure not to be a God?" So Nietzsche. Thus the prophets possess a "nature" (*Vornehmheit*, akin to Renaissance *nobilità*), as the German romantics called it; and Philosophy must needs hear them, as even Mr.

⁹ Note in passing that, just as *Kinder der Welt* is the best introduction to Nietzsche, there is a best introduction to Emerson, though of a very different kind. George Palmer Putnam's *American Facts* (1845), an apology curiously compounded of snarling and fawning, gives the clue to his aversions. He had reason and to spare for assertion of self-dependence. Obfuscation was everywhere. Consider these footprints on the sands of time: Thoreau successful by auto-intoxication, Poe sent to Coventry, Bryant and other tabbies stroked on and from the seats of the mighty. Small wonder that Emerson gave Nietzsche the lead in recommending war as a cathartic.

Bradley admits.¹⁰ Thanks to this "nature," they call themselves to the company of the elect. As naturally, their pugnacious pathos always betokens an activist philosophical yeast. Setting spiritual and practical freedom by the ears, they are keenly concerned to maintain that a man's "morals" have nothing to do with his—or any—metaphysics. The old, illusory whatever-it-may-be is slashed to bits; the seer heads a revolt of the human spirit. And the value of it? The value of it lies precisely in its relentless pursuit of stupidity by creatures of destiny! "Away with this hurrah of the masses, and let us have the considerate vote of single men spoken on their honor and conscience." Emerson said this once, Nietzsche a thousand times.

As I see it, then, we must approach Nietzsche from some such angle rather than from the objectivities of philosophy. But if so, another generation may well have to pass ere the time will be ripe. Meanwhile, every one who desires to learn what manner of man he actually was, to know how his cyclopean notions rolled, must go to Mr. Salter. I detect no sign of a "post-Nietzschean period in philosophical speculation," rather, the reverse—witness Thomas Mann's *Betrachtungen eines Unpolitischen*—but Mr. Salter's withers are unvrung. He has given us the most completely equipped monograph on a single thinker within living American memory.

R. M. WENLEY.

ANN ARBOR.

THE EDUCATION OF HENRY ADAMS.

This book has made an interesting appeal to the American public. It is widely read. It has been numerously reviewed. In fact, one feels that some explanation is in order before the reader is asked to consider anything further. By way of apology and encouragement it is mentioned here that this paper limits its purpose to the philosophy of Henry Adams as expressed in the book and implied in the teaching and method of Adams.

We get a man's philosophy at the end of his career. Hence we proceed backward, beginning with the last chapter in the book. "Nunc Age" is the title. Adams returns to America, the long search for an education ended. As the ship enters New York, Adams standing upon the deck views the city. The appearance of the city violated every canon of art. There was no unity, no

¹⁰ Cf. *Ethical Studies*, p. 181.

form, no beauty. Adams saw chaos and hysteria, a disorderly exhibition of vast, unregulated force. The city seemed the result of an explosion, an upheaval of mad power. Physical expansion beyond the utmost dream on every hand. The center of this power was the Trust, and the Trust illustrated monopoly. Adams looked for the man who had increased with this increase in physical power. He could see no gain in man. "The two thousand years' failure of Christianity roared upward from Broadway, and no Constantine the Great was in sight." Adams saw no gain in ultimate values from the Trust. "They tore society to pieces and trampled it underfoot." Roosevelt was giving battle to the Trust in Washington. Adams journeyed thither. There he found John Hay, his good friend. Roosevelt made no impression upon the Trust. John Hay was one of our great secretaries; but his career was as puzzling to Adams as was the city of New York. Hay represented intelligence, order, high purpose. He had developed an Atlantic policy. Through this policy peace would come to all the nations bordering the Atlantic and remain with them. He was at work upon a similar policy for the Pacific. Against him as crude, raw power stood the Senate. The life of Hay broke against this power and the policy was blocked. Power triumphs over intelligence. Adams saw in the struggle of Hay the same ultimate problem that Plato saw when Athens broke the life of Socrates. Neither man recovered from the experience. Adams closes the chapter with the melancholy reflection that it might be interesting to return one hundred years hence and look again upon the tangle.

In the chapter "Vis Nova" we have the problem that broke Henry Adams. He had lived in Europe and studied its life. He found there the power of the Virgin. This influence had produced an excellent type of man. It also manifested itself in forms of beauty permanent and gracious. Adams yielded to the appeal of the cathedral and the glass in the windows of the cathedrals. It was the Virgin that broke the power of the Empire. Rome knew slavery and the occult as power. But Rome could not digest the power of slavery and in the end was undone by it. Then came the power of the Virgin, deep, subtle, ennobling, expressing itself in the cathedral as visible, permanent beauty. Here man came into relation with ultimate value and his education made progress.

Out of this rich, moving experience Adams crossed the Atlantic to visit the St. Louis Exposition. Here he met a new power, coal.

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Coal produced steam and steam produced, not beauty, but force. Adams was unable to find any ultimate value in force that educated. The Exposition was closed on Sunday. The best in a man is associated with Sunday. The exposition had no message for man on Sunday. The cathedrals were never closed. They had wide-open relations to life. Adams was utterly puzzled. He said that his education failed him completely. He saw only chaos in the vast exhibition of force. He preferred the cathedral and returned to Europe.

To enter fully into Henry Adams's difficulty one must consider the teaching in the chapter called "The Problem," in the *Degradation of Democratic Dogma*. The problem here is the possibility of history. The historians have stood upon the first law of physics, the conservation of energy. Using Lyell and Darwin as interpreters of this law, he sets forth to report the phenomena of man's life as a steady, progressive realization of perfection. A controlling purpose, wise and good, is in these phenomena holding them to the great end. The historian examines the past, the present and the future. Out of this examination he brings a practical formula for the daily, safe conduct of man.

As Adams sees it, this method is not to be tolerated. It is historical scandal. It ignores completely the second law of thermodynamics. This law states the opposite of the law of evolution. Energy is not conserved; it is lost. Nature is not developing. Nature is dying. This discovery was stated by Sadi Carnot in 1824. It was developed by Thompson, Lord Kelvin, Clausius and Helmholtz. "There is at present in the material world a universal tendency to the dissipation of mechanical energy." "Within a finite period of time past, the earth must have been, and within a finite period of time to come, the earth must again be, unfit for the habitation of man as at present constituted." Adams says, "When this young man of twenty-eight thus tossed the universe into the ash-heap, few took him seriously; but after the first gasp of surprise physicists began to give him qualified support which soon became absolute."

Accepting this second law of physics, life shows metaphysical confusion, ultimate defeat. In this utter antagonism, what is the hope for history? Adams, a professional historian, was unable to find himself. He found it impossible to understand history. Nobody has understood death. The only utterance about it so far is to deny it. In the face of the facts and the second law of physics, Adams

admitted that the earth was dying. The sun is steadily decreasing. At one time its diameter was equal to the orbit of Mercury. Plant life reached its maximum in the carboniferous period. Animal life reached its maximum in the miocene period. At the end of these periods the earth faltered under its load. According to Saporta the shrinkage of the sun manifested itself in the cooling of the earth at the poles. These places ceased to support life. The migration began toward the equator. Adams could find no relief in the suggestion that man was not held in the nature-process. He accepted the teaching of evolution. He saw no possible rescue from the whirlpool. Man is in and of the death-struggle. Man dies. Physically man dies. Intellectually man dies. As man is developed, he does not transcend the law. He dies faster. Already he has lost twelve teeth. His jaw-bone is narrower and hence weaker than it should be. Physically the developed man is without value. The training of his intelligence does not avail. The scholar loses the hair from his head, his teeth, and his eyes. The developed woman tends to become sterile and to lose the capacity to nourish her offspring.

Confronted with this condition, Adams resumes his task of formulating a possible plan for history.

The static treatment of history is without foundation or hope. Evolution and the second law of thermodynamics have done for history a revolution as complete as the work of Copernicus did for the Ptolemaic astronomy. The same kind of work must be done for history that was done for nature by Galileo, Kepler and Newton. But these men did not have to consider the second law. The task of the historian is more difficult. Frankly, Adams feels that the historian is out of a job. His occupation, beyond that of nature's stenographer, is gone. In the chapter "A Dynamic Theory of History" Adams presents the case so far as it is possible to do so. Given two equal forces, moving in opposite directions, is a purpose possible? The old static theory with its basket full of facts is absurd. There are no facts. There are forces, currents, and these in deadly grapple, with death getting the better of the struggle. Can we find the law of the struggle? Can apparent facts find a place or function in the world-whirl? The comet of 1824 rushes into the sun, remains within its circle, then wheels about and retires, unmindful of the laws of attraction and unmelted by the heat of the sun. Adams says all known methods of explanation fail before such a phenomenon.

The development of Roman life proceeded steadily until its high point under Diocletian. The achievement looked to be progress. Value had been achieved. Diocletian resigned. The movement stopped, then fell back, then chaos. Is this evolution? Is it anything intelligible? Gibbon wrote volumes to explain the problem. He left it where he found it. Adams sat on the steps of the deserted temple where Gibbon had sat and pondered over the problem. He could find no relief. Rome, by the sacred doctrine of evolution, should have stood. One page of man's life illustrates development; the next page exhibits the death of this progress. There is no history in the sense of a steady realization of perfection. History as a science is impossible. The educating force in Europe is not a supreme European purpose, but the compass, gunpowder, and the microscope. Man has followed these blindly. They have controlled the lines of action.

Adams spent seventy years in the effort to adjust himself, and failed. Education was supposed to prepare him. It did nothing. "If school helped, it was only by re-action." "The passionate hatred of school methods was almost a method in itself." "For success in life as imposed upon him he needed, as afterward appeared, the facile use of only four tools, mathematics, French, German and Spanish. These four tools were necessary to his success in life, but he never controlled any one of them." "Books remained as in the eighteenth century, the source of life." The condition was not improved by four years at Harvard. "Beyond two or three Greek plays, the student got nothing from the ancient languages." "He could not afterward remember to have heard the name of Karl Marx mentioned, or the title of *Kapital*. He was equally ignorant of Auguste Comte. Yet these were the two writers of his time who most influenced its thought." "The entire work of the four years at Harvard could have been easily put into the work of any four months in after-life." "Socially or intellectually the college was for him negative and in some ways mischievous. The most tolerant man in the world could not see good in the lower habits of the students, but the vices were less harmful than the virtues." Having failed to become equipped at Harvard, Adams goes to Germany and enters the University of Berlin. The results were less than at Harvard.

Having failed to secure education at the hands of the university, Adams sought it of the politicians, diplomats, and in travel. He

was in Washington when President Grant announced his cabinet. He went to Washington eager to learn and expecting to support Grant. He says, "To the end of his life, he wondered at the suddenness of the revolution which actually, within five minutes, changed his intended future into an absurdity so laughable as to make him ashamed of it." With diplomacy the case was little better. Gladstone admitted that his view of policy in 1860 was terribly wrong. The war of 1870 was not expected and nobody predicted the outcome. Diplomats appeared to have nothing to teach. They were concerned with "theaters, restaurants, monde, demi-monde, drives, splendor, grandezza." Adams says he learned the little he knew by accident, generally the concept breaking when he was idle or trying for something else. Therefore Adams loved travel. I suppose he would admit that travel gave him social education. It certainly made him a highly cultured man.

The thin confidence left to Adams in current methods of education was destroyed by the career of Clarence King. King was the young man perfectly equipped for a successful life. He had all that American education could give. Yet his end was miserable; his life a palpable failure. John Hay was a great secretary of state. Yet he had to fight the Senate constantly and saw most of his work killed by the Senate.

Perhaps the above statement will serve to set forth that Henry Adams saw a deep problem and was unable to satisfy his intellect. Physically, socially, religiously, intellectually he faced chaos. He never had a sense of world-mastery. He never caught the vision of supreme purpose in ultimate triumph everywhere. Chaos, night, the end is the story.

As said in the beginning, the book has had a wide response from the public. Does this mean that the book interprets the deeper consciousness of American life? Is America to repeat the experience of Europe and give to the world a "Dark Age," a confessed sense of utter failure? Is this the significance of the wild, mad abandon of ultimate principle characterizing so much of life to-day? I do not suppose that the winter season is to be stopped in its approach by criticism or argument; but it is of advantage to see its coming and to prepare for its ice and storm. Adams points clearly to a winter season in civilization, if nothing more. It is in order to attempt to understand the grounds of his prophecy and the method of it.

Adams had a view of knowledge, a method of study, and a philosophy underlying this view and determining his method. Let us consider these in order.

Psychologists are not agreed as to exactly what happens when you know. You look at a bench. You get knowledge. Is there any wood in your knowledge? If there is no wood in your head, and you have knowledge of the wood, which is not wood at all, we are in difficulties at once. Like other men, Adams holds one theory of knowledge and uses a different theory in criticism. Education is learning, getting knowledge. What is it one gets? Adams says, "The young man himself, the subject of education, is a certain form of energy; the object to be gained is economy of force; the training is partly the clearing away of obstacles, partly the direct application of effort. Once acquired, the tools and models may be thrown away." That is, the aim in education is to grow a strong, full man who can put forth effort efficiently.

In criticism Adams uses another theory. Truth is objective. The process of education is to connect the student with this perfect truth. Thus connected, the student will be equipped to master the forces in his life. This is the mechanical view. Truth is as the water at the bottom of the well; man is one hundred feet away; education is the device of the bucket, chain and windlass. When the chain breaks, there is thirst unquenched. The mechanical theory enables one to pass swift, final, infallible judgments. Adams's book abounds in these ultimate judgments. The chain broke. There is nothing to discuss. Nothing escapes the keen analysis of Adams. Adams sought all the education within reach; but when the grapple came, he was without the infallible formula. The fault was in the education. The chain broke. Clarence King was the best educated young man in America. The panic of 1893 ruined his fortune; germs ruined his health; he died in a lonely lodging-house, his education failing to meet every test. Education had no value for Clarence King. Hay and Lodge succeeded, but not through education. Each one married into a wealthy family. Theoretically education should cover the past, the present, the future; actually it is of no value at any point. This conclusion is final for Adams.

This conclusion ignores the view of education stated by Adams. Not a perfect formula, but an efficient man is the aim of education. This view does not require that a man transcend himself. It is enough that he be "a certain form of energy, efficiently putting

forth effort." An educated man need not be always successful; it is enough that he find his place and fill it. Force is negative as well as positive. The nitrogen is good nitrogen when it loses its form and lives as big, green corn. No education, no knowledge can go in advance of concrete, vital things. To be qualified to order a perfect dinner and enjoy it fully is not an adequate training for cooking a similar meal. When Adams says the four years at Harvard were wasted, it is in order to ask for the explanation of Adams. He became an international figure. He wrote a remarkable book. Upon what meat did this young Cæsar feed? If we accept the theory of education stated by Adams, then the fact of Adams as he matured annuls his criticism.

The method of Adams is intellectualistic. That is, he permits no elemental function to feeling. He strives to be pure intelligence. He admits willing, but only as force; and unrationalized force is chaos. Strict intellectualism can never lead beyond itself. Limited to an intellectual analysis the Sophists of Greece could find nothing of value. So of David Hume. The intellectual process is a process of assimilation. It may be compared to the process of digestion. When the dinner is digested, it has ceased to be, as dinner. It has become muscle, nerve, blood, power to do. So it is with knowing. To know is to understand, to master, to assimilate. When a problem is solved it ceases to be a problem; it is now power of the intelligence solving it. Mastery, strength, insight come to the intelligence solving it. The truth in the problem has been assimilated. This knowledge that is understanding is centered not in the object, nor the subject, but in concepts. The concept is individual, and yet more than individual. The individual gets it. It is his, and yet he can share it with others and lose nothing by giving it. How the concept breaks into the consciousness is not yet described. James says, "By a process too well known to need description." If Professor James knew, he stood alone in the world. We get concepts by study, by loafing, by dreaming, by toil and by the aid of teachers. The ancients called it a process of vision that occurred on mountain tops. The Greeks called it *eureka*. The act is individual always. When it comes, the result is a state of identity between the student and his knowledge. It ceases to exist over against him. It is his discovery, his theory, his truth. He is now an authority, a master. Adams says his concepts came by accident. He found his first musical satisfaction in this way. I think this is

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the experience of all students. I know a student who worked ten years to get a concept of law. It burst upon him one morning when he was trying to do something else. The process of understanding is as vital to the spiritual life as eating bread is to the physical life. One cannot recall the assimilated elements in either process. The act is an analysis in which the object disappears. What remains is an experience, a growth. This process of growth has vitamins that so far defy analysis. They escape the scientist in his analysis of the simpler forms of life; they are far beyond us in the higher forms of life. Therefore, when Adams says he got nothing from his four years at Harvard, he is like the boy who complained of hunger six hours after he had feasted at a marvelous banquet. His keen hunger is largely the result of the perfect banquet. If the boy had filled himself with fried meat and grease, he would never have cared for another banquet. Adams spent his life searching for more. He gave free rein to his intellect. It was keen, strong, penetrating. Its work abounds in charm and sparkle. Nothing escaped it. Like the scientist dissecting a cat, it did a thorough job. Only fragments remained. Love rears the objects that the intellect dissects. Adams permitted no place for the emotions. Therefore he found life empty.

The philosophy of Adams is interesting. He had reached a state of detachment from any creed. His intellectual processes were uncommonly free. He accepted the facts and bowed to the currents as he uncovered them. But Adams did not free himself of the inertia or habit that goes with mental inheritance. Nor could he escape the guna of Greek philosophy. Adams fancied himself so free as to be capable of pure intellectual processes, utterly beyond the control of partiality. He went cordially as far as the first law of physics and the doctrine of evolution made clear. But he was unwilling to go further than was clear. He could see no evolution in the fall of the Roman Empire, and said so frankly. Nobody ever showed the evolution here. With equal sincerity he went with the second law of thermodynamics, the law of decadence. These laws contradicted each other. Adams did his utmost to find a line of advance beyond this stalemate. To the end he stood helpless. The problem appeared to grow. He saw that nature had ceased to do large things. The large animals were extinct. The big mountains are finished incidents. No more wide oceans need be hoped for. Nature is cooling and the sun is decreasing. Nature's only constructive interest appears to be in microbes, the microscopic.

Over against the nature-process was the struggle of civilization. Everywhere man is consciously struggling to stay the process of nature. He responds to the large. In Church, in State, in thought man's dreams are imperial. Only the world-program fires his ambition. No piddler is a hero anywhere in history.

That is, nature is moving in one direction; civilization is moving in the opposite direction.

The Greek philosophy had no means of handling a paradox. "Of two contradictories, one is false." Adams was bound by the limits of Greek philosophy. Adams, using this principle of contradiction, sought the one that must triumph. He could see only the triumph of nature, ultimate death to all.

There is no doubt that the principle of contradiction has a wide field. In the formal, static world it is adequate. If the figure is a five, it cannot be six. If the lion lives, the lamb must die. But the vital world cannot be interpreted adequately with the Greek canon. In the static world nothing is anything else; in the dynamic world everything is something else. A football game is impossible without opposites. The game requires two teams that oppose each other. In a perfect game, neither team would score; and the end would find both teams facing each other in the middle of the field. Each team has failed in its purpose to score and win. This is chaos as Adams sees it; it is perfect football as the expert sees it. The supreme thing here is not the purpose to score; but to play the game. The laws of the game, the grounds, the crowds present, the spirit of sportsmanship are involved. This situation makes a growing appeal to modern life. American life does not respond tremendously to a statue, but to a struggle. The American public crowds the stadiums, but not the sanctuaries. It seeks the living. And life is a struggle.

The analytical process using the canon of contradiction cannot interpret a struggle. It can see nothing but chaos unless one of the parties to the struggle is overcome. The defeated party must be destroyed; this establishes the victorious party. Now life does not destroy; it assimilates and cooperates. To understand this struggle one must have the dialectic process. Adams came up to the dialectic process; but he appeared unable to see its usefulness. A humorous caricature was all he could do. Had he yielded himself to the dialectic, as he did to the second law of thermodynamics, it would have led him into clearness and peace. The dialectic process was used

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by Jesus first. In his time there was a deadlock. Only a Jew, or a Greek or a Roman citizen had value, according as Jerusalem, Athens or Rome delivered the judgment.

There was social, political and philosophical chaos. Jesus using the dialectic process, saw God and man as one, and mankind as a brotherhood. This was a most horrible doctrine. The either-or type of mind put him to death. But the dialectic process had been uncovered and released to the world. Later Hegel undertook to make the process a working formula.

The dialectic process takes everything at its face value. The Absolute, the limited, the world, the individual, law, struggle, peace, violence, are frankly accepted. "I in thee, and thou in me; that we all may be one." The dialectic process destroys nothing. Minus does not destroy minus; it gives plus. The end of the stick is as necessary as the wood. A stick is wood and no-wood, the utter absence of wood. The citizen is not the State, he is free; yet the State exists in the citizen. In life each thing lives in its other. Water does not destroy oxygen; it illustrates oxygen. So of all things. There is the moment of negation, the opposition even to flat contradiction; and there is the moment of assertion, the positive moment. Life is the synthesis of the two. A strong character is never one grown in a nursery; but always one that triumphs over supreme temptations. It is the acid test, the Gethsemane that makes the man. The dialectic process recognizes this and finds equal value in the moment of negation and the moment of assertion. Both are necessary. Life is not the triumph of one over the other, but the struggle between the two; the issue is not chaos and death, but a higher synthesis. That is, the struggle is continued upon a higher level. Not death, but the utmost of life is the outcome of the dialectic process. "Not a sparrow falls to the ground" idly.

The full analysis of the dialectic process belongs to logic rather than to an article upon Henry Adams. I know of no work more needed than a good statement of the dialectic process. Until this comes we will remain unable to satisfy ourselves as to reality, life, truth, God. A working formula for the dialectic process will point the line of advance to social life as well as to human thinking. That such a working formula was not available is a loss to American history as well as to the peace of mind of Henry Adams.

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BOOK REVIEWS.

INTERNATIONAL POLITICS. By *C. Delisle Burns*. London: Methuen and Co. Pp. x, 189. Price, 5s. net.

Mr. Delisle Burns has written a very readable description of international politics and indicated the principal problems calling for solution which the contact of cultures and of political and commercial rivalries has produced. Though Mr. Burns gives us a clear account of the facts of the international situation as they will appear to a dispassionate observer, and this is valuable work, there is no serious attempt made to trace the psychological antecedents of existing conditions. That is to say, Mr. Burns makes it obvious that national prejudices are frequently ridiculous, and diplomatic practices fraudulent, but we are not made to understand how it happens that the average good father may become a hypocrite when acting as a state official abroad, or good neighbors show an habitual lack of sympathy toward foreigners. The author, too, has a tendency to see in all national policy the deliberate design of ministers fully conscious of their aims and the consequences of their actions. In spite of these psychological defects Mr. Delisle Burns's book should form a useful introduction to the study of world-problems. (In a second edition the foot-note quotations from French sources will need careful revision.)

FRANK WATTS.

WHAT RELIGION IS. By *Bernard Bosanquet*. London: Macmillan and Co., 1920. Pp. xii, 81. Price, 3s. 6d. net.

In this sincere little book Dr. Bosanquet attempts to express with simplicity and directness what appear to him to be the distinguishing marks of a true religion. "Whenever a man is so carried beyond himself," he says, "whether for any other being, or for a cause or for a nation, that his personal fate seems to him as nothing in comparison to the happiness or triumph of the other, there you have the universal basis and structure of religion."

Dr. Bosanquet does not, however, approach his subject in this wide and generous spirit straight away, and consequently those prejudiced readers for whom the traditional terms of Christian theology—sin, salvation, justification by faith, suffering, etc.—have an alien or hostile sound may find it difficult to get beyond the first few pages. To those, however, for whom such terms have a friendly and intimate meaning Dr. Bosanquet will appeal from the start with genuine power. We should have recommended an approach to the subject through the spirit of the last chapter rather than through that of the first, for here we find ourselves at a common meeting-point away from which the non-Christian might be led with greater success through the more unwinning by-ways (where the theologians throng) to the peace which is beyond.

FRANK WATTS.